THE LIZARDS AND TURTLES OF KANSAS
WITH NOTES ON THEIR DISTRIBUTION AND HABITAT

by

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THE LIZARDS AND TURTLES OF KANSAS

Aside from E.B.Branson's"Snakes of Kansas",contained in the Kansas University Science Bulletin,vol.2.no.13-1904;Annie E.Mozley's"List of Kansas Snakes",published in1878;and F.W.Cragin's"APreliminary List ofKansas Reptiles and Batrachians",Trans.Kans.Acad.of Science vol.7, 1879-80,and his "Second Contribution to the Herpetology of Kansas" vol.9,of the same works,nothing directly has been attempted on the herpetological fauna of the state.

Branson's work deals very aptly with his particular branch and is still considered an authentic reference in this regard.The other three works mentioned,Miss Mozley's dealing with snakes alone,as the title infers,are but preliminary lists and far from complete as the fauna is known at this time.

It is therefore the aim of this paper to give as far as possible an accurate,readable,complete,and not too lengthy annotated list of the lizards and turtles now living within the borders of the state I have to the best of my ability and with what literature Ihave been able to gather together,given a complete synonymy of the scientific term by which each specimen is known.For the most part the synonymy of nomenclature used in connection with the lizards is taken from E.D.Cope's "Crocodilians,Lizards,and Snakes of North America",contained in theAnnual Report of the Smithsonian Institute 1898.His classification is also followed throughout.

The symonymy in connection with the turtles dealt with in tne paper is taken from O.P.Hay's "Batrachians and Reptiles of Indiana",contained in the 17th Annual Report of Geology and Natural Resources

of Indiana 1891;from W.E.Taylor's,"Box Tortoises of North America", Proc.U.S.Nat'l.Museum vol.17,1891;and from Julius Hurter's "Herpetology of Missouri", Trans.of the Acad.of Science of St.Louis vol.20, no.5.

After the synonymy,I have inserted a photograph,for which I am greatly indebted to Mr Theadore Rockland,Taxidermist and Photographer of the Museum here,showing the different specific and sub-specific characters.A description,further substantiating the position given the specimen in the classification scheme,follows this. Next I have used a miniature map of Kansas showing the counties by means of which the range ,so far as known, is given. The discussion of each specimen is completed with a few words on the habitat and modes of living.

I have been very fortunate in having placed at my disposal,thru the courtesy of Mr.C.D.Bunker,Curator of the Museum,and Dr.B.M.Allen Dean of the Zoology Department,the entire collection of reptiles belonging to the University,for which courtesy and helpful advice as well,I wish at this time to express my appreciation. I have also received an unlimited amount of very beneficial aid and encouragement from Dr.Leonhard Stejneger,Head Curator of Reptiles and Batrachians at the U.S.National Museum. When there was any doubt as to the exact identification of any specimen,Dr.Stejneger was always willing to lend assistance. I wish at this time to extend my sincere thanks to him for the aid he has given me during this undertaking.

After a careful examination of each specimen,and a careful consideration of the literature available on the subject,I feel quite safe in listing twenty-one species, including five well founded subspecies of lizards,and thirteen species of turtles.

Besides these,I have listed,as doubtful,Crotaphytus collaris

baileyi,the basis for which is found in the occurrence of several specimens from a limited district,all of which present several variations from the true Crotaphytus collaris,and all of which tend strongly towards Crotaphytus collaris baileyi.A detailed description of these specimens will be found in the discussion of this sub-species.

I have also made special emphasis upon a very interesting form of Phyrnosoma,presented in two individuals,one from Douglas Co.,this state,and the other from southern Texas.It appears as only a variation from P.cornutum,but since the variations are so distinctly shown,and since they occur in two specimens from such widely separated localities,I feel that a discussion of the same should be included here.

The entire list of specimens described,which follows,then includes twenty-one species and sub-species(including two doubt ful)of Lacertilia,and thirteen species of Chelonia.

CLASSIFICATION

CLASS-MONOCONDYLIA (Including birds and reptiles)

SUB-CLASS-REPTILIA.

Basi-cranial axis ossified, vertebral column consisting chiefly of centra, limbs of the non-piscene type, that is embracing a single proximal element, two propodials, several mesopodials, metapodials, and phalangeal elements. But one occipital condyle present. A distinct quadrate bone or suspensorium of the lower jaw. Carpal, tarsal, and metapodial elements not coosified with each other. Cerebral hemispheres lager than mesencephalon, whose moieties are fully exposed above and not laterally. Cerebellum small. Heart with three chambers. Aorta derived from two aortic roots, which consist of one or two bows on each side. Lungs cellular, functional. Gall bladder, pancreas, and fat bodies present. Integument scaly, mammary glands absent. Either oviparous or viviparous. Fertilization internal, copulatory organs present. Embryo with amnion and allantois. Placenta absent.

ORDERS-TESTUDINATA (CHELONIA)

Scapular and pelvic arches within thoracic and abdominal bones. A paraoccipital, no supra-mastoid, a large precoracoid scapula, no precoracoid, coracoid free from sternum behind, ribs one headed, intercentral

ORDER-SQUAMATA

Quadrate bone loosley articulated and at proximal extremity only, one or no post-orbital bar (Streptoslylica) Ribs single headed, no pectineal bone, acetabulum closed, feet not volant. No quadratojugal, quadrate therefore articulated by its proximal extremity only. No ostabulare. Paraoccipital present, Opisthotic early fused with the supra-mastoid. Nostrils both external and

internal.Maxillo-palatines,palatines,and pterygoids distinct,and paired.Ecto-pterygoids present and distinct.Teeth on maxillary and dentary bones.Stapes with long shaft or columella,terminating in a cartilage.

Vertebral centra procoelus,rarely amphicoelus,caudals with chevrons neural arches coosified with centrum,except atlas,which has neuropophyses separate from body and from each other,odontoid process distinct.Not more than two vertebral elements in the sacrum.Cervical ribs present.Dorsal ribs single headed,articulating with diapophyses;one to several pairs articulating with sternum.No sacral ribs. No tegumentary abdominal bones.

Scapular arch when developed consists of supra-scapula,scapula, precoracoid,coracoid,clavicle,and interclavicle,frequently a proscapula.The scapula is not cossified with the other elements. Coracoid articulating with single plate like sternum. Pelvic arch when complete,embracing the three elements which enclose below a large obturator foramen.Ilium directed backward and upward.

Brain with large olfactory lobes which are not as large as the hemispheres.The latter are larger than the thalami,and their ventricles are on the external side of their nucleus(corpus striatum).Thalami exposed above as well as laterally.Cerebellum small,without flocculi(lobe). Central canal of spinal cord present.The eye possesses the usual Monocondylian characters in the prescence of the pecten which extends from the choroidea to the sheath of the lens. It is not so plicate as in birds.The organ of hearing conforms to the same type in the abscence of a helix and the prescence of a lagena and sacculus.The sympathetic nervous system is well devel-

oped and presents a series of subvertebral ganglia.

The alimentary canal is little specialized in the different parts of its course, but the stomach ic distinguished by its greater diameter and generally more muscular walls. The diameter of the rectum generally exceeds that of the preceding parts of the canal.

The heart has three chambers, two auricles and one ventricle.

Sexes distinct; testes and vas deferens distinct from renal ducts discharging separately into the cloaca. Males with two prehensile organs each enclosed in a sheath, one on each side of the base of the tail. They are evertible and retractile. Oviducts distinct.

The integument is characteristically divided into small areas or scales, which are occasionally the seats of osseus deposits as in Scincidae and Gerrhonotidae, but this is exceptional. No osseus scuta, other than the cases mentioned. Abdominal scales generally different from dorsal. The integument of the head is divided into many plates of definite relations, which are homologous throughout the various subdivisions and even the various sub orders of the Sauria and Ophidia. These plates are generally considered as being formed of fused scales.

SUB-ORDER-SAURIA

Quadrate bone articulating with exoccipital, (except in Agamid group) parietals not closing the brain caes in front, generally an epiterygoid and sternum present. Teeth with dentinal roots; phalanges with condyles.

SUB-ORDER-OPHIDIA*

Quadrate bone articulating with paraoccipital; parietal, and frontal bones enclosing brain case in front. No epiptery-goid or sternum, teeth rootless, no phalanges.

SUB-ORDER -SAURIA

SUB-ORDER-SAURIA

FAMILY-IGUANIDAE

Femoral pores present, vertebrae without zygosphen.

A-Posterior cranial borders not spinous.

1-Superciliary scales imbricate, labials segmented.

a-a gular fold present, occipital plate small-------CROTAPHYTUS.

b-a gular fold present, with enlarged scales, occipital plate large.--UTA.

c-no gular fold; occipital large. SCELOPORUS.

2-Both superciliary and superior labials imbricate.

a-tympanum concealed, occipital large, digits not fringed.--HOLBROOKIA.

B-Posterior borders of cranium with bony spines.

Two hepato-ventral mesenteries

1-Labials and superciliary scales not imbricate; occipital plate small. A gular fold present; body short, depressed; ribs elongate.

a-Tympanic drum exposed--PHYRNOSOMA

b-Tympanic drum covered with scaly skin. ANOTA.

GEOGRAPHICAL DISTRIBUTION OF

IGUANIDAE

NEARTIC LIFE REGION				
EASTERN	AUSTRORIPARIAN	CENTRAL	PACIFIC	SONORAN
SCELOPOROUS	SCELOPOROUS	SCELOPOROUS	SCELOP.	SCELOP.
	ANOLIS			
		UTA	UTA	UTA
		HOLBROOKIA	HOLBROOKIA	HOLB.
		CROTAPHYTUS	CROTAPHYTUS	CROTAP.
		PHYRNOSOMA	PHYRNOSOMA	PHYRNOS.
		should not be included		

The Neartic representatives of the Iguanidae agree in possessing the following characters--

1-characters of the tongue

2-teeth are always more or less compressed and three to five cusped posteriorly

3-scales on the body rather small,generally subrhomboidal and arranged in slightly oblique series;more or less imbricated, most distinctly so anteriorly.

4-eyelids present in all.Males distinguished from females by the prescence of plates behind the anus which are larger than the rest.Scales on the back arranged on each side of a central dorsal series

CROTAPHYTUS COLLARIS,SAYI.

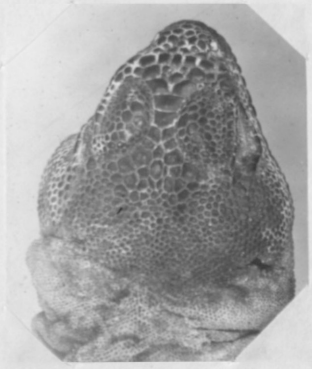
SYNONyMY

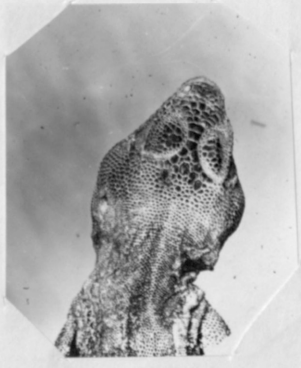
Crotaphytus collaris,Sayi.--Cope E.D. U.S.Nat'l.Mus.Report 1898.p. 248.--F.W.Cragin:Trans.Kans.Acad.Science,vol.7,p.117,1879-80--J.Hurter's Herpetology of Missouri:Trans.Acad.Of Science of St.Louis 1911,vol.20,no.5.--Vernon Bailey,N.Amer.Fauna,No.25.p.39.--J.K. Strecker,Reptiles and Amphibians of Texas,vol.18,no.4.--Witmer Stone,Proc.Acad.Nat'l.Science Phila.Aug.1903--Raymond L.Ditmar's The Reptile Book,p.113.

Crotaphytus collaris,Holb.-N.Amer.Herpet.no.2.1842,p.79.pl.10. Baird and Girard in Marcy's Red River Explorations,1843,p.235. Hallowell,Proc.Acad.Nat'l.Science of Philadelphia.,no.8.Oct.1856, p.238,Dec.1856,p.309.---Wied.,Nov.Act.Ac.Leop.Car.32,1865,p.58. Baird.Rep.U.S.Explor.Survey.,13,pl3,1857,p.17,24,fig.1;U.S.and Mex. Boundary Survey,1859,p.6.--Cope E.D. Proc.Acad.Nat'l,Science Phila. 1866,p.302.--Bocourt,Miss.Sc.Mex.Rep't.,1874,p.154,pl.17,fig's 5&6. Boulenger,Cat.Liz.British Museum.,2nd ed.No.2,1885,p.203.

Agama collaris,Sayi.Long's Exped.Rocky Mts.2,1823,p.252--Harlan Med.Phys.Res.,1835,p.142,pl.4.

Liosaurus collaris-A.Duméril,Arch.Mus.8,1856,p.533,note 1.



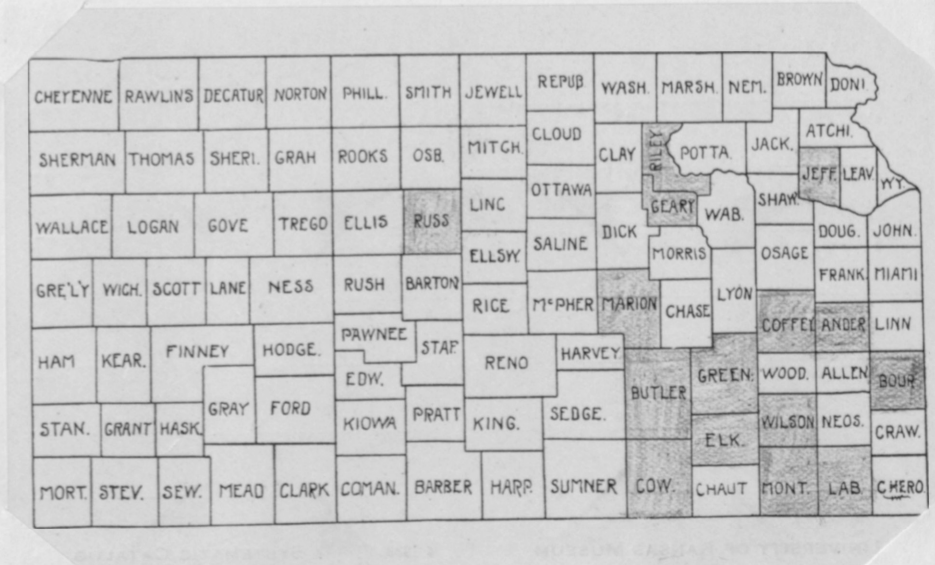


Description:

Head very broad, equal to distance from snout to ear; tail slender, rounded and is much longer than body. General color of ♂ is greenish and in the ♀ is grayish, both being mottled. The young are the same color as the ♀. In the young however the markings are more distinct, with the light bands taking the place of spots in many specimens. The sexes are distinguished by the presence in the ♂ of large scales posterior to the anus. The chin of the adult is bluish green reticulated with yellow. A double black collar on each dide of the neck, with a break on the central-dorso-cervical region of about six to fifteen scale widths.

Supra-orbitla plates very much smaller than the inter-orbitals and those on the anterior space of the head. A wide variation of the form of these inter-orbitals occurs. In 142 specimens examined, fourteen presented a double row(C.baileyi), 37 had one scale extending across the inter-orbital space, ninety-one had two, and but one had three

Range: Localities from which specimens have been taken and recorded.



Habitat:

This lizard is most commonly found in the rolling prairie country where an abundance of loosely lying flat rocks occur.It is most abundant along the limestone ledges that occur so frequently on the brinks of the slopes in the Flint Hill district.Occasional along stone fences and culverts along the highways.but rarely in the immediate vicinity of wooded districts.

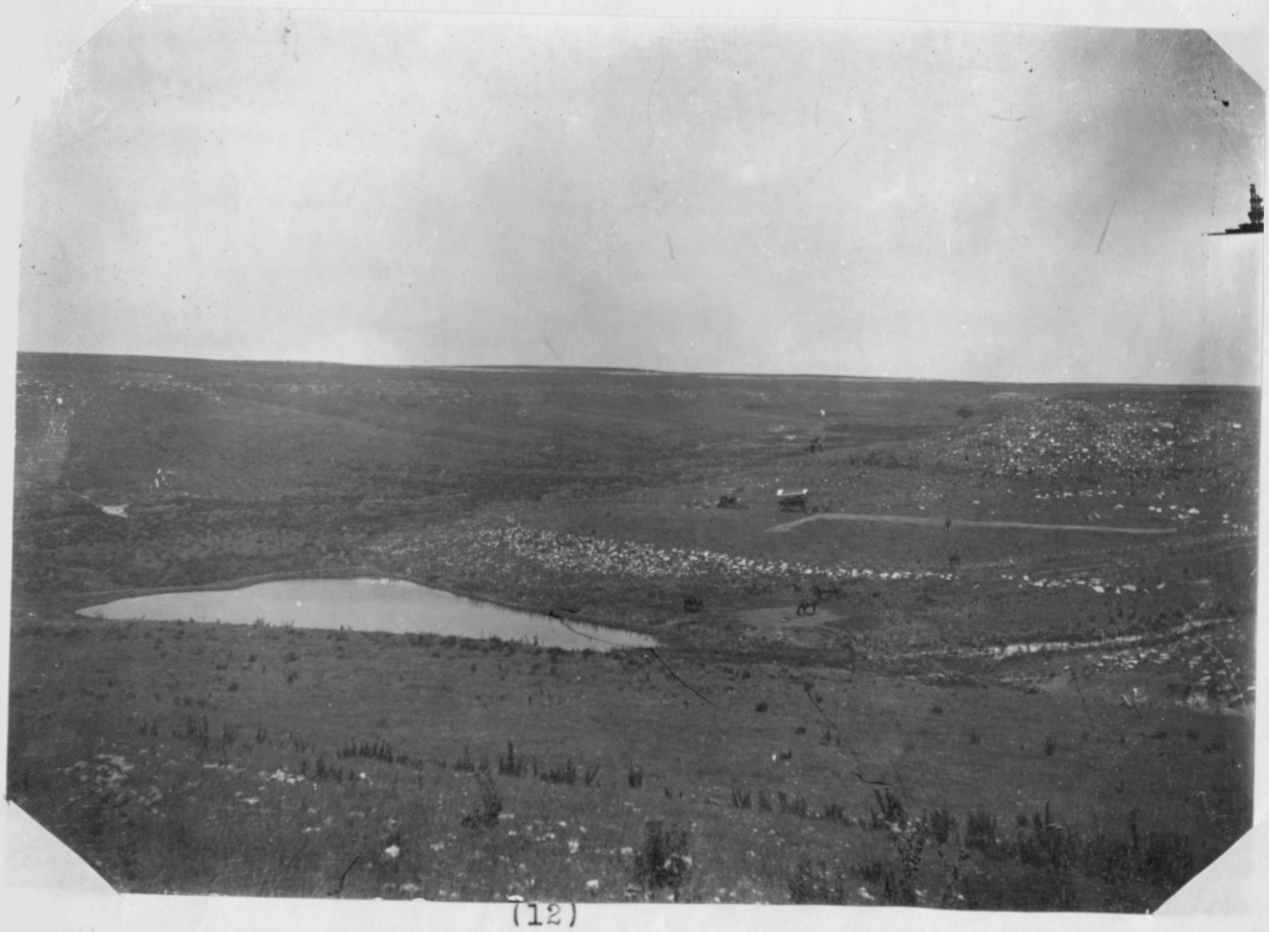
It is peculiar in its habits in that it appears from under the rock or object that serves as its habitat along about the middle of the forenoon,where it remains quite motionless until some insect, of which grasshoppers,beetles,and crickets constitute its principle food,happens near,when with a lightening-like dash it seizes its prey and quickly devours it. It will again resume its motionless stand ready for its next lunch.This process may be continued until late in the afternoon when it(the lizard) slowly moves to its retire ment,awaiting the resumption of actions on the following day.

If approached while on,its lookout for food,it will scurry from its position to a place of concealment,usually its abode.Upon lifting the object under which it has taken refuge,or otherwise disturbing and driving the lizard into the open,it willthrow its tail high above its back,hold its head erect,and with body well above the ground,will with remarkable speed seek the covering of some other nearby hiding place.

During breeding season,the ♀ becomes very vicious.I have had these lizards,under the above circumstances,jump from a rocky ledge onto my body and ineffectually,but furiously bite at my clothing.A bite on the bare hand is very little more severe than a pinch

Photograph of specimen on the lookout for food

Photograph of typical habitat of C.collaris.



p. 12 see after p. 13

CROTAPHYTUS COLLARIS BAILEYI.

SYNONYMY

Crotaphytus collaris baileyi: Cope E.D. Nat'l. Mus. Report,1898 p.250.--STEJNEGER.L.N.Amer.Fauna,no.25.p.40.--J.K.Strecker,Amph. and Reptiles of Texas,vol.9.no.4.Baylor Univ.Science Bull.--Wiemer Stone,Proc.Acad.Nat'l.Science.Phila.,Mar.1911.

Crotaphytus collaris,Bocourt.Miss.Sci.Mex.,Zool.Dep't.3 livr,p.155 pl.17,fig's.6,6a,1874.

Description

Very similar to C.collaris,head narrower,and with at least two rows of interorbital plates.

Table showing comparative width of head of C.collaris and C.C.baileyi.

No.of specimen.	Total length in mm.	width in mm.(head)
C.baileyi 13a	280	25
C.baileyi 13b	212*	20
C.baileyi 13c	240	21
C.baileyi 13d	270	22
C.collaris 3c	258	22
C.collaris 6d	251	23
C.collaris 25b	260	23
C.collaris 24a	270	28

*this specimen had a stub tail.

Upon examination of the above table, the fact that the head of C.c.baileyi is narrower in proportion to the total length than in C.collaris is plainly evident.

In specimen no.13d (C.c.baileyi), we have a head width of 22 mm. and a total length of 270 mm., while specimen no.3c(C.c.collaris) having the same head width (22mm.) is only 258 mm. in length. Again comparing specimen no.13d (t.l.-270mm. & h.w.-22mm.) with specimen no.24a (C.c.collaris) which has same total length (270) we find a head width of 28mm. Further comparison of the eight specimens noted above, tends to bear out this distinguishing character.

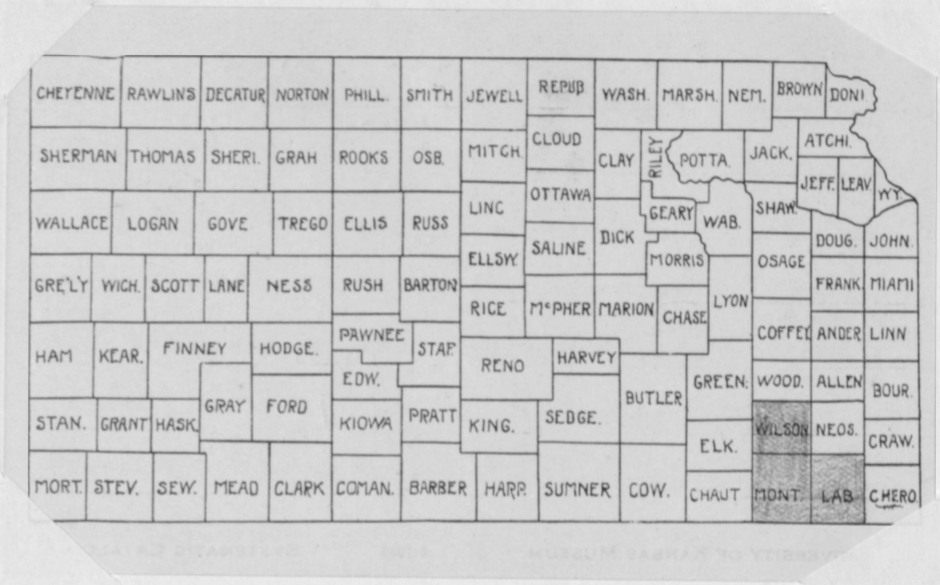
"Bocourt seems to have been the first to notice this difference in the scutellation and proportions of the heads of the typical C.collaris and the form here named C.c.baileyi, but owing to the fact that he only possessed a single specimen of the latter, with somewhat uncertain locality (Mexico), he failed to recognize the full significance of the characters he so admirably describes and figures. the general similarity in the very striking coloration which in both forms is equally variable seems to have been the concealing feature of the distinction between them" L.Stejneger, N.Amer. Fauna No.3, p.103.

Cope, p.250 of his report in the Smithsonian Report of 1898says in this connection--"In arranging the specimens, I set apart three lots-first, those presenting two rows of frontal scales(C.baileyi) second, those presenting one row , and third, those bottles which contain specimens, mostly from the same locality of both kinds"

L.Stejneger, N.Amer.Fauna, No.3 p.103 again says, "C.baileyi is very similar in coloration to C.collaris, but has at least two rows of inter

orbital scutellae, supra-oculars smaller, head narrower and snout longer

Range--localities from which specimens have been recorded.



The range of this species or more correctly this sub-species in the state so far as is known is limited to a very restricted area in the extreme S.E. corner of the state. Of fourteen specimens in the Museum collection, seven are from Montgomery county, two from Wilson and three from Labette counties. Two additional specimens presenting this double row characteristic are from Greenwood and Anderson, one each, but the double nature is here irregular and the comparative width of the head does not hold true.

This record extends the known range of this sub-species in the United States approximately 450 miles east of the most northern record and 400 miles north of the most eastern record

Habitat

The habitat in this case is the same as in the instance of the true C. collaris.

HOLBROOKIA MACULATA MACULATA, Baird and Girard

Holbrookia maculata maculata, B.& G.--E.D.Cope, Nat'l Museum Report 1898, p.293.--Witmer Stone, Proc.Acad.Nat'l Science Phila., Mar.1911.

Holbrookia maculata, Girard--Proc.Amer.Assoc.for Advancement of Science, 10, 1852, p.206.--Stansbury Reports, 1852, p.342, pl.4., figs. 1-3, Reptiles--Baird and Girard, , Marcy's Red River. 1853, p.236.-Bocourt, Miss.Sc.Mex.Rep't., 1874, p.116, pl.17, fig's.7.--Hallowell , Proc.Acad.Nat'l.Sc.Phila., 8, 1856 , p.239.--A.Dumeril, Arch.Mus., 8. 1856, p.546.--Cope, Bull.U.S.Nat'l.Mus.17, 1880, p.15.--Boulenger, Cat. Liz.Brit. Mus.2, 1885, p.209.--Rept.and Amphibians of Texas, J.K. Strecker, vol.18, no.4.--F.W.Cragin, Trans.Acad.of Kans, Sc., vol.7, 1879-80--V.Bailey, N.Amer.Fauna, No.25, p.41.--F.W.Cragin, Bull.of Wash. Labor.of Nat'l.SC.vol.1.no.1p.8, 1884.--Ditmars R.L., Reptile Book, p.1

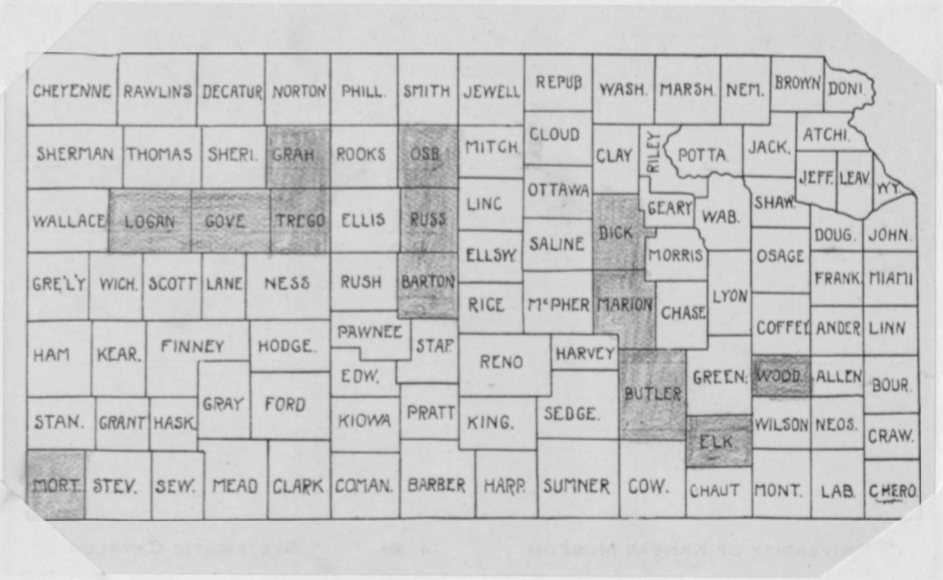
Description:

Head broad and short, upper labials six, temporal plates smaller than those on side of haed.

Above ashen gray to reddish brown with darker lateral regions. There is a series of 10-13 dark blotches usually broken into by the light median dorsal stripe. These blotches may fuse and form a continuous dark stripe (No.105h) which fades rapidly on the tail.

In all specimens in the Univ.Mus.collection,the dark spots on the uder surface of the tail,are absent,but Cope.Rep't.Nat'l.Mus.1898 p.291,says that they may be present rarely.There are two,sometimes four,(no.1101) dark crescent shaped spots on the sides of the belly. An indistinct white line may be traced from the posterior margin of the orbit back to insertion of hind leg.In some a very faint line may be noticed below this,extending between insertion of fore and hind limbs.Under surface white except belly which may be dark blue. Average total length of 15 specimens was 96 mm.

Range-localities from which specimens have been recorded.



Habitat-

Found around grassy,weedy,or brushy patches in sandy or gravelly regions where the sun is not restricted.Rarely found under rocks or other objects of concealment unless driven there for safety. A specimen was captured in the summer of 1912 by the University Survey party,while attempting to swim a riffle in a small river. However I feel that the lizard had in all probability been driven from the gravel bar at the approach of the collectors and had taken to the water as alast resort. This lizard is moderately swift in its

movements,running for a short distance,when it will suddenly stop, flatten itself,making it very difficult to distinguish it from the ground . At your approach,it will suddenly start from its hiding place and resume its peculiar actions.

HOLBROOKIA MACULATA LACERATA, Cope.*

Synonymy

Holbrookia maculata lacerata, Cope. Bull. U.S. Nat'l. Mus. no. 17--N. Amer. Fauna, no. 3, p. 109, 1890.--J.K. Strecker, Amphibians and Reptiles of Texas, vol. 18, no. 4.--V. Bailey, N. Amer. Fauna, no. 25. p. 41.--Ditmars Reptile Book, p. 140.

Holbrookia lacerata, Cope. Boulenger, Cat. Liz. Brit. Mus. 2d. ed., ll. 1885, p. 209.

Description--(taken from Cope)

"Tail cylindrical, slender, a little longerthan body; hind foot short, less than one third of head and body; six or eight supra-orbital scuta surrounded by minute tubercles; scales of muzzle tubercular. Labials less elongate, five oblique, one flat; femoral pores 12-13; no blue spots on the sides"

* Dr. Leonhard Stejneger says in this respect and in description of the same specimens mentioned above in Cope's report in Rep't of Nat'l. Mus. 1898.--"So far as coloration of the upper parts are concerned, H. lacerata is closely approached by three specimens from Neosho Falls, Kansas, (no. 4693) and in regard to the lateral spots it may be stated that they are present in all three examples belonging to the National Museum, though the original description expressly says "no blue spots on the sides".

Cope further says in his description, "This is a short legged

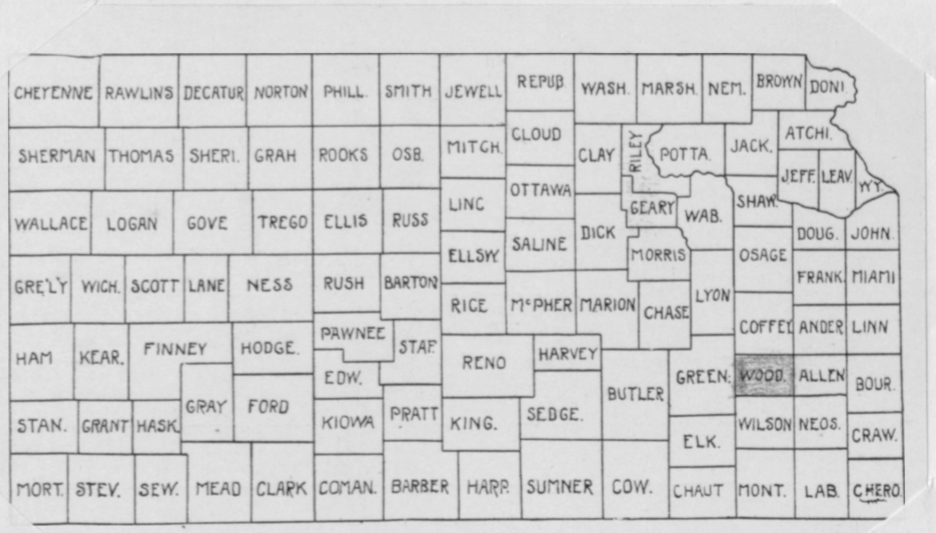
(L6.

species allied to H.maculata,but with longer tail and very different coloration.In this respect it differs from H.maculata in a point not above mentioned.The dorsal ground color is every where the,a rich yellowish brown".

Still further,concerning H.lacerata,Vernon Bailey in his report of the Biol.Survey of Texas,N.Amer.Fauna No.25 p.41 says,"One specimen of the spotted-tailed lizard from Cotulla,two from 16 miles west of Japonica,and one from 25 miles s.w.of Sherwood considerably extend the southern and western range of the species.Apparently it belongs to the Lower Sonoran Zone".

In a careful examination of seventy-four specimens of this species in the Univ.Mus.collection,I find none in which the blue spots on the inferior surface of the tail are present;therefore upon these results as well as the references above cited,I consider the identity of Cope's three specimens as very doubtful and the occurrence of Holbrookia maculata lacerata within the state very unlikely.

Range- the county given is the one from which the specimens mentioned above are recorded



SCELOPORUS UNDULATUS CONSOBRINUS, Baird and Girard

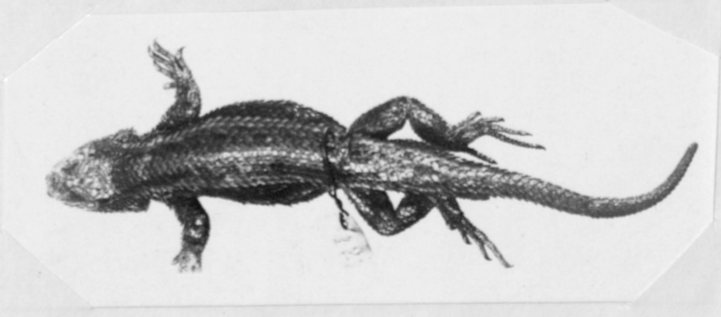
Synonymy

Cope E.D. Nat'l Mus.Report,1898 p.377.--Witmer Stone,Proc.Acad. Nat'l. Science Phila. Aug. 1903.

Sceloporus consobrinus,B.&.G. Marcy's Report on Red River Rep't. 1853,p.237,pl.9.--Baird,U.S.Pac.R.R.Surveys,Whipples Report ,Rep'T. 1859,p.5.--Cope E.D. Bull.U.S.Nat'l.Mus. 1880,no.17.pt.17--L.STEJ-neger,N.Amer.Fauna,no.3. 1890,plll.--F.W Cragin,Trans.Kansas Acad. Science,vol.7,1879-80--Vernon Bailey,N.Amer.Fauna,no.25,p.42. F.W.Cragin,Bull.Wash.Labor.of Nat'l.Hist.,vol.1,no.1,1884,p.7. Witmer Stone,Proc.Acad.Of Nat'l.Science,Mar.1911.--Ditmar R.L. Reptile Book,p.129.

Sceloporus undulatus,Bos'c.Herpet,Mo.vol.20,no.5,1911,p.131. J.Hurter.--F.W.Cragin.Trans.Kans.Acad.Science,vol,7.p.131,1879-80. O.P.Hay.Batr.and Reptiles of Indiana,17th Ann.Report on Geol.and Nat'l.Resourcse of Indiana.--O.P.Hay.Proc.Biol.Soc.of Wash.vol.15. p.134.

Sceloporus garmani,Boulenger.Proc.Zool.Soc.Of London.,1883,p761 pl.601.

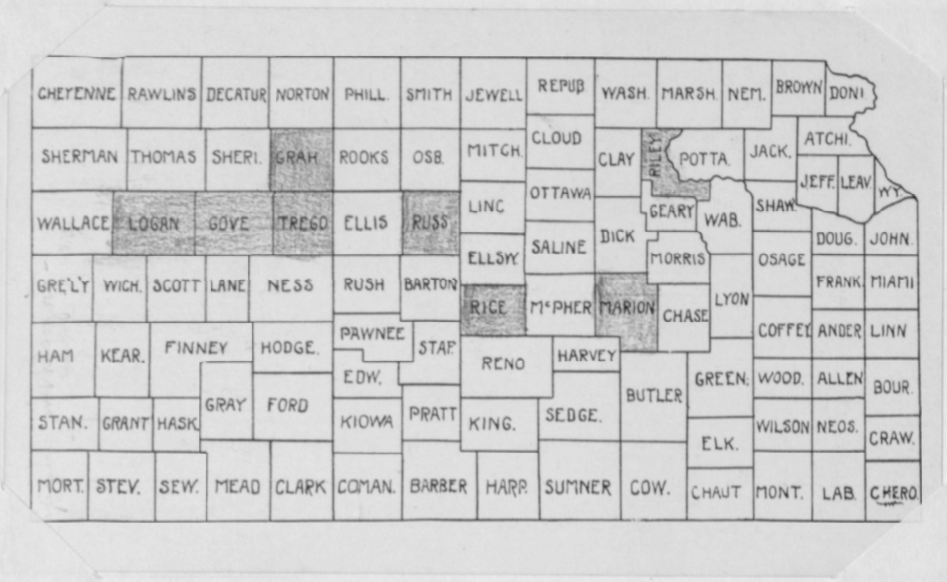


Description:

Short,rather stout,tail less than body,which has a spinous or roughened appearence. There are two distinct white dorso-lateral stripes separated by a darker strip of eight scale widths. Here the undulating dark bands,characteristic of S.u.undulatus which will be disaussed later,are replaced by a series of from 11-14 dark spots covering approximately three scales.Below the dorso-lateral stripes,thereis another of two scale widths,but being on the smaller lateral scales does not appear as wide as the upper white stripe.This second white stripe is separated from the former by a dark band of from 3-4 scale widths.This dark band ends at the insertion of the fore limbs,except for a narrow line(visible in clearly marked specimens) which extends anteriorly to the inferior border of the orbit.There is a dark patch just in front of the fore-leg. The sides in the ♂ are black,in the ♀ white. This color extends on to the ventral surface for a considerable distance,there being a white strip on the belly of but 9-11 scale widthsseparating the dark blotches.The remaining ventral surface,except for two faint dark spots on the throat,is white.

The dorsal surface of the head is usaally the same color as the broad median dorsal stripe,but this coloration may vary considerably. In specimen no.121.1d,the dorsal surface is very dark,while the head is buffish.In specimen no.125.1h from the same locality just the opposite is true.Intermediate stages between these two extremes may be found.

Range:localities from which specimens have been recorded.



Habitat:

These small lizards are very active and are able to run with remarkable speed. They are arboreal in their habits as well as terestrial, being able to ascend a tree, fence post, rock cliff or the like with great alacrity. I have observed them running along the face of a perpendicular cliff with no apparent difficulty, usually proceeding but a short distance, when they will attempt to hide in a crack or crevasse. May also be found under ander the loose bark of trees or in rotten logs.

They usually spend the day on a fence rail, stone, log, or the like basking in the sun, and procuring food which consists of flies, ants, small spiders and similar insects.

SCELOPORUS UNDULATUS UNDULATUS, Latreille.*

SYNONYMY:

Sceloporus undulatus undulatus, Latreille. E.D.Cope, Nat'l. Mus. Rep't 1898,

Sceloporus undulatus undulatus, Cope.--Check List Batr. and Rep't. N.Amer., 1875, p.48.

Sceloporus undulatus, Baird. U.S. Pac. R.R. Reports, 10; Whipple's Report of Reptiles, p.37.

Sceloporus undulatus, Latreille, Witmer Stone, Proc. Acad. Nat'l. Science Phila., Aug. 1903, --Ditmars, Reptile Book, p.128.

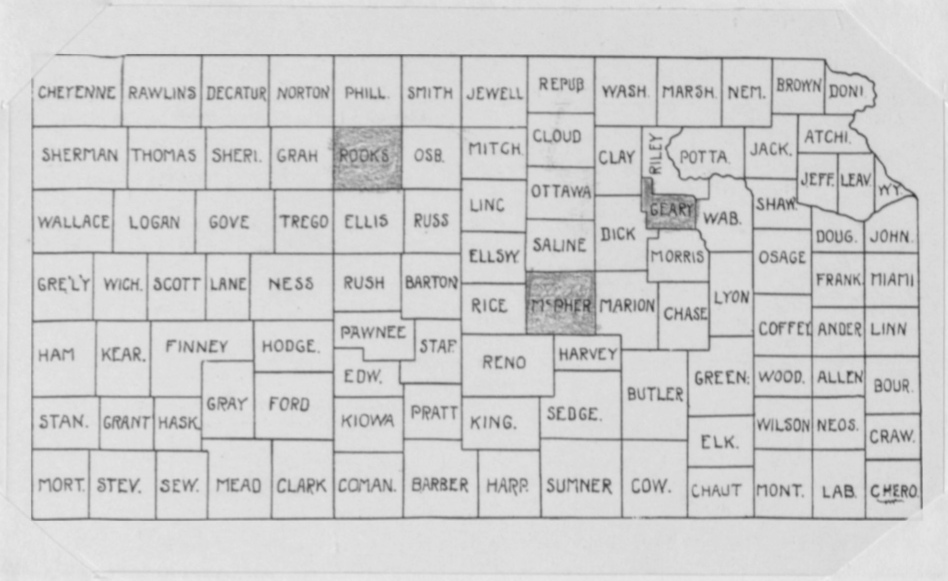
Sceloporus undulatus, Harlan. F.W. Cragin, Trans. Kans. Acad. Science. vol. VII, p.117, 1879-80.

DESCRIPTION:

This lizard is to be distinguished from S.u.consobrinus by its larger size, by the wrinkled condition of the cephalic plates, and by the undulating brown cross-bars on the dorsal surface in the place of the separate spots. The breadth of the head as compared to the total length of the body is also to be considered as a distinguishing feature between the two. A specimen collected by Julius Hurter in Missouri, now in the Kans. University Collection, measures 118 mm. in length and has a breadth of head of 16 mm., while a specimen of average size of S.u.consobrinus which is 120 mm. in length has a head breadth of only 10 mm.

The ground color in S.u.undulatus is darker than that of S.u. consobrinus

Range:Localities from which specimens have been recorded.



Habitat:

The habitat of this lizard is identical with that of Sceloporus undulatus consobrinus.

*I found no specimens of S.u.undulatus in the Museum collection, but Cope in his works on Crocodilians,Lizards,and Snakes of N.Amer. lists four specimens from Ft.Riley(p.370),and F.W.Cragin lists one each from Rooks and McPherson Co's.,vol.Vll & lX,res'p of Trans. Kans.Acad.Science.

PHYRNOSOMA CORNUTUM, Harlan.

SYNONYMY:

Phyrnosoma cornutum, Harlan.--Cope E.D. Nat'l. Museum Report 1898 p.432.--J.Hurter Herpet.of Miss., vol.XX, no.5, 1911, p.133.--F.W. Cragin, Trans.Kans.Acad.Science vol.V11, 1879-80.--J.K.Strecker, Amph. and Reptiles of Texas, Baylor Univer.Bull. vol.XV111, no.4, p.23. N.Amer Fauna no.25, p.43.--F.W.Cragin, Bull.of Wash.Lab.of Nat'l Sci. vol.1.no.1.p.7.1884.--Witmer Stone, Proc.Acad.Nat'l.Sci.of Phila. Aug.1903., Mar.1911.--Ditmar's Reptile Book P.144 & 153.

Phyrnosoma cornutum, Gray.Syn.Rep't.Griff., Cuvier's Anim.King. 1X, 1831.p.45;--Boulenger, Cat.Of Liz.in Brit, Museum, 1845, p.229. Holbrook, N.Amer.Herpet., 11, 1842, p.87, pl.X1.--Girard, Stans.Explor. Gt.Salt Lake 1852, p.360, pl.V111, figs.1-6.--E.blanchard, Organ.Reg Anim., 1852, pt.5, pl.X11.--Hallowell, Sitgreaves Exped., Zuni, 1853, p.119 Girard, Herpet.U.S.Explor.Exp'd., 1858p.403, pl.XX1, figs.6-9, U.S. Mex.Bound.Survey, 1859, p.9,--Bocourt, Miss, Sc.Mex., Rep't.1874, p.236, 1870, pl.X11, fig.9.--Boulenger, Cat.Liz.Brit.Mus., 11, 1885, p.245.

Agama cornutum, Harlan, Jour.Acad.Nat.Sci.Phila., 1V, 1835, p.299 pl.XX; V1, 1829, 14;--Med.and Phys.Res., 1836, p.141, pl., figs, 1&2. Griffith's, Cuvier's Anim.King., 1X.1831, p.216.

Tapaya cornuta, Cuvier.--Reg.Anim., 2nd.ed., 11, 1829, p.37.

Tropidogaster cornutus, Fitzinger,--Syst.Rep't., 1, 1843, p79.

Tropidogaster bufonium, Fitzinger.--Syst.Rept., 1.1843, p 79.

? Lacerte tapayaxin, Barton.--Med.and Phys.Jour., 111, 11, (1807?)68

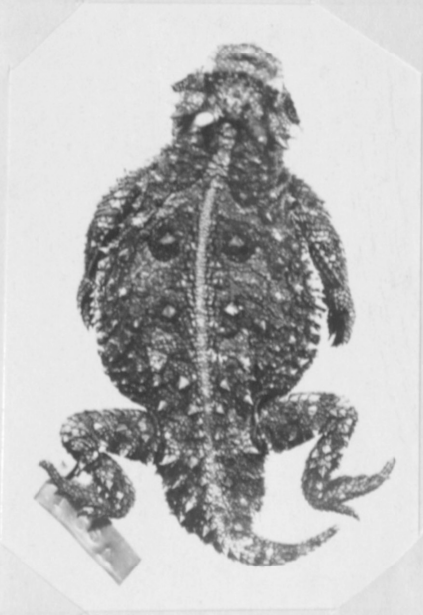
Phyrnosoma bufonium, Weigmann --Isis, 1828, p.367.---Gray, Syn. Rept.Griff., Cuvier's Anim.Kingd., 1X, 1831, p.45.

Phyrnosoma harlani, Weigmann,--Herpet.Mex.1, 1834, p.54.--Dumeril

and Bibron,1V,1837,p.314.--Spring and Lacordaire,Anat.pt.2,1842 p.192,(Bull.Acad.Roy.Bruxelles)--Aug Duméril,Cat.Liz.Coll.Rept.Mus. of Paris,1851,p.28.

Phyrnosoma obiculare,Holbrook--N.Amer.Herpet.,11,1842,p.93,pl.X11

Phyrnosoma planiceps,Hallowell,Proc.Acad.Nat'l.Sci.Phila.,V1,1852 p.178;--Sitgreaves Exp.,1853,p.124,plV11.



Description:

Head broad and very short,more so than in the other species of this genus.Line of chin and rostral forming a right angle.Superciliary ridge consisting of eight bony plates,ending in prominent horn directly above the eye.Three horns are present on the temporal region;the smallest one below and the largest (or equalto the middle) above.The two occipital horns are more acute in this species than in any of the others.There is a series of 15 bony plates under the chin in the form of a V. with the apex anterior.These plates increase in size posteriorly.The inferior region of the temporal,plainly visible from below,extends well beyond the margin of these plates.

There is arow,three scales wide,of smooth scales extending down the

mid-dorsal region,This row is bordered on each side by a row of large flat keeled scales.Two rows of marginal abdominal scales with spines present;the more inferior one the smaller. Femoral pores present in ♂ only.

Measurements;taken for comparison with no.168b next described.

Total length in mm.---------105

Length to vent " ---------- 73

" " gular fold----------15

" " end of occip.horn---22.5

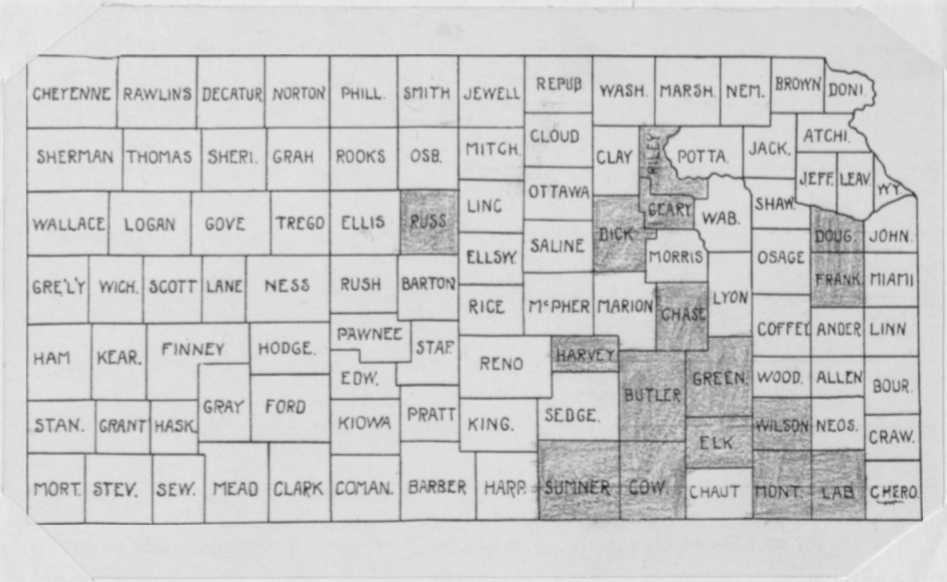
" " base of " "-----15

Width at temp.(horns includ)-24

Length of tail---------------32

" " " from broad base-19

Range:localities from which specimens have been recorded.



Habitat:

With few exceptions always found in dry,sandy,sun-shiny places Very common along the roadsides within its range.Are particularly favored with protective coloration.When flattened out on the gravel

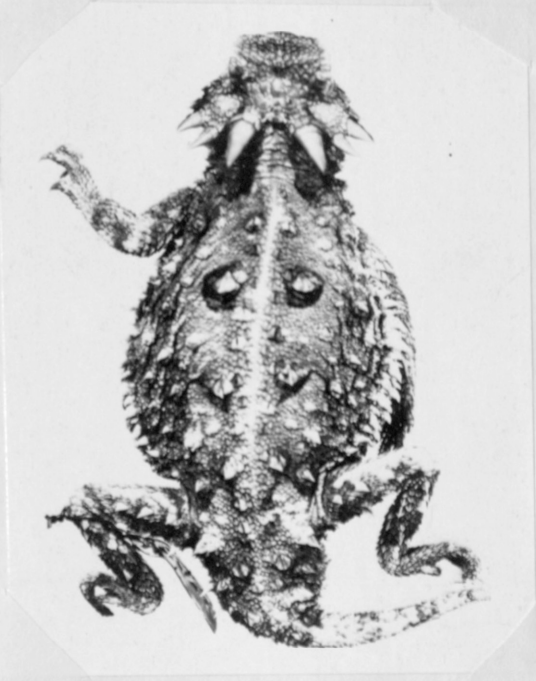
it is next to impossible to distinguish them from their surroundings as long as they remain in this position,but being easily frightened,they usually start from their hiding place at your approach.They seldom run far ,rather going but a short distance when they suddenly stop flatten themselves,sometimes almost covering themselves with the loose sand or gravel,and await your nearer approach.

Their food consists chiefly of insects.Very often the lizard will occupy an ant mound and devour practically the entire colony from one position. An examination of the stomach contents in one specimen from south-eastern Kansas,revealed the prescence of the following insects.

Family	No.of specimens
Otiorhynchidae	1
Chrysomelidae	2
Membracidae	1
Coleoptera(order)	numerous
Formicidae	1200(Close approximation)

PHYRNOSOMA CORNUTUM*----------?

In specimen no.168b,collected in the vicinity of the University campus,I consider that there are presented certain characters that are deserving of special mention. After a thorough perusal of all the available literature on this subject,I have come to the conclusion that nothing has been written concerning these characters or variations as they may be.The photographs inserted below together with the description given will tend to prove my conclusion.



Description:

The differences presented by this specimen,and approached in 184a,aspecimen from Texas,I consider sufficient grounds for a subspecific classification.Whether it be a sub-species of cornutum or coronatum,I am unwilling to decide.The resemblances to P.cornutum are the prescence of very acute horns;the very short snout,and the double marginal row of spiny abdominal scales.It differs however from the same,by the abscence of the superciliary horn;the length and position of the occipital horns;the length of the tail;width of the smooth dorsal strip;and number and position of the horned scutes below the chin. (30)

Below is given a tabulated, comparative, description of a specimen of P.cornutum and the specimen under consideration. The specimen chosen for comparison with the new(?) one is of as near the same general size as could be found.

	Phyrnosoma cornutum	Phyrnosoma -----?----
Superciliary horn----------	present	absent
No.of horned scutes beneath chin	16	19
Pos. " " " " "	broad V	Narrow V
Width of smooth dorsal stripe	3 scales	1 scale
Total length----------	105mm.	108mm.
Length to vent----------	73mm.	68mm.
Length of tail----------	32mm.	40mm.
Length to end of occip.horn-----	22.5mm.	26.5mm
" " base " " " ----	15mm	15mm
" occipital horn----------	7.5mm	11.5mm
Pos. " " ----------	very acute	(sloping posterior (convex anteriorly
Wdth.at temp.inc.horns----------	24mm	25.5mm
" between superciliary ridge---	12mm	13mm
Lg. of tail from broad base------	19mm	25mm

I wish to make note here that the sex of both specimens is the same, being ♂.

Habitat:

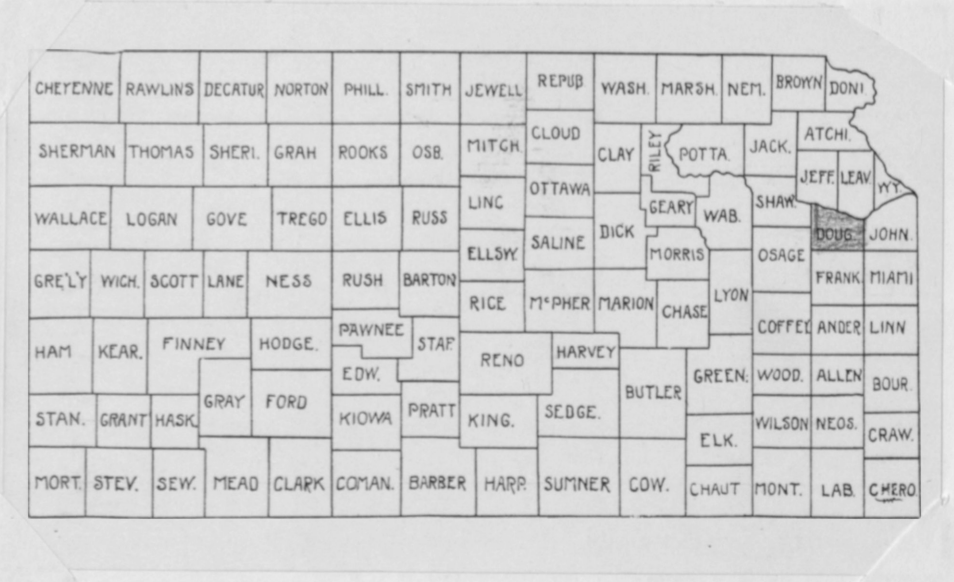
The habitat does not differ in any respect from that of P. cornutum.

Range:

The specimen described was taken in Douglas Co., but I regret to say that I feel doubtful as to its being within its normal range.

Prof.H.T.Martin,of the Paleontology Department in the University here,turned loose several specimens of Phyrnosoma after returning from a trip to Northeastern Colorado,on the campus.This together with the fact that the horned toad is very often kept in captivity as apet and then turned loose,will,I think,tend to explain not only the occurrence of this specimen in this locality,but that of the other forms of Phyrnosoma as well.

P.cornutum has been taken in the state a short distance east yet of Lawrence,but along the southern border where the natural conditions are suited for the existence of this small lizard.The natural environment about Lawrence does not resenble in any way that of the regions in which the horned toad is usually found.



PHYRNOSOMA DOUGLASSI HERNANDESI, Girard

SYNONYMY:

Phyrnosoma douglassi hernandesi, Girard.--Cope E.D. Nat'l. Museum Report, 1898, p.413.--J.K. Strecker, Baylor Univer. Sc. Bull., vol. Vll, 1879-80, Reptiles And Amphibians of Texas, no.4, p.22.--Ditmars, Reptile Book, p.144-149.

Phyrnosoma hernandesi, Stej., N.Amer. Fauna, no.3, 1890, p.112.

" " , Gir.--" " " ".25, p.43, --Witmer Stone, Proc. Acad. Nat'l. Sc. Phila., Mar. 1911,

Phyrnosoma douglassi, Bell.--F.W. Cragin, Trans. Kans. Acad. SC. vol. Vll, 1879-80.

Tapaya hernandesi, Girard.--U.S. Expl. Expd. (Ch. Wilkes), Herpet., '58 p.395;--U.S. and Mex. Boundary Survey, 1859, p.8.--Bocourt, Miss. Sci. Mex. Report, 1874, p.228.

Tapaya brevirostris, Girard.--U.S. Expl. Expd. (Ch. Wilkes), Herpt. 1858, p.397.--Bocourt, Miss. Sci. Mex. Rept., 1874, p.229.

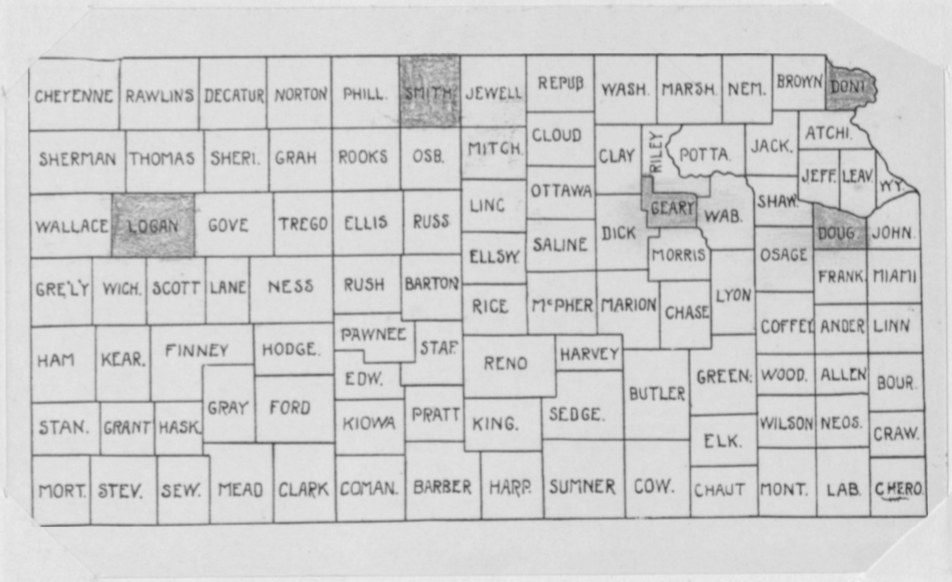
Phyrnosoma brevirostre, Cope.--Proc. Acad. Nat'l. Sci. Phila., 1866, p.302.--Boulenger, Cat. Liz. Brit. Museum, 11, 1885, p.240.

Description:

The head is very much more pointed than in P.cornutum. The horn or modified superciliary scute most posteriorly located, the occipital and temporal horns are much reduced. The scutes on the under side of the chin are also much reduced and situated more nearly on the margin. There is but one row of marginal scales along the abdomen with spines, Tail much longer than in P.cornutum.

Femoral pores present in both sexes, which are distinguished by the prescence of large post anal plates in the ♂.

Range:



Habitat:

Identical with that of P.Cornutum.

SUB-ORDER--SAURIA.

FAMILY---SCINCIDAE

No femoral pores,head covered with symmetrical shields an azygos occipital is rarely present.Pupil round;eyelids well developed;tail constructed of peculiar connective tissue which enables the possessor to break it off by vigorous jerking.Power of regeneration is here present.

GENUS-EUMECES:

Supra-nasal plates present;frontal divided;a noticeable descending process of the parietal present.Palatine and pterygoid bones separated on the median line of the palate,the latter with teeth.

GENUS-LIOLEPISMA:

Supra-nasal plates wanting;two fronto parietals plates.Palatines in contact on median line of palate.Tympanum not covered with integument.

EUMECES QUINQUELINEATUS,Linn.

SYNONYMY:

Eumeces quinquelineatus,Linn.--Cope.E.D. Nat'l.Museum.Report, 1898,p.632;--J.Hurter,Herpet.of Missouri,vol.XX,no.5,p.140.--J.K. Strecker,Baylor Univer.Sc.Bull.volXVlll,no.4,p.25.--Vernon Bailey, N.Amer.Fauna,no.25,p.45.--Witmer Stone,Proc.Acad.Nat'l.Sci.Phila. Aug.1911.--Ditmars Reptile Book,p.196.--

Eumeces quinquelineatus,Bucourt.:Miss.Sci.Mex.;Survey.Ohio, Zool.,vol.lV,p.650.--Peter's Monats.L.K.Akad.Berlin,1864,p.49.

Eumeces fasciatus,Linn.F.W.Cragin,Trans.Kans.Acad.Sc.vol.Vll,1879 1880.p.117.--O.P.Hay.Batr.and Reptiles of Indiana,17th Ann.Report on the Geology and Nat'l.Resources of Indiana,1891,p.548.--O.P.Hay. Proc.Biol.Soc.Wash.vol.XV,p.134.

Eumeces fasciatus,Cope.Cope E.D. Check List N.Amer.Batr.and Rept. 1875,p.45.--Boulenger,Cat.Lix.of Brit.Museum,1887,lll.p.370.

Lacerte quinquelineatus,Linn.--Syst.Naturae,12thed.,1,1766,p370 Shaw,Gen.Zool.,lll,pt.1,1866,p.24.--Green Jour.Acad.Nat.Sci.Phila. lV,pt.2,1818,p.284,pl.XlV,fig,2.

Lacerta fasciata,Linn.--Syst.Nat.,12th ed.,1,1766,p.369.--Shaw Gen.Zool.,lll,pt.1,1800,p.241.

Lacerta tristata,Latreille,--Hist.Nat.Rept.,1.p.248.

Scincus laticeps,Schneider,--Hist.Amph.,11,1801,p.189.--Daudin Rept.lV,1802-03,p.301.

Scincus quinquelineatus,Schneider,--Hist.Amph.,1801,p.201--Latreille,Hist.Rept.,11,1801,p.74,fig.24.--Daudin,Rept.,lV,p.272. pl.LV,fig.1.--Merrem,Tent.Syst.Amph.,1821,p.72.--Kuhl,Beitr.Z.Zool. v.Virgil,Anat.,p.128.--Harlan,Jour.Acad.Nat.Sc.Phila.,Vl,1837,p.10.

Phys.Med.Res.,p.138.--Holbrook,Amer.Herpet.,11,1842,p.121,plXV11.

Scincus tristatus,Daudin, Rept.1V,p.296.

" Erythrocephalus,Gillians:Jour.Acad.Nat.Sci.Phila,1,1818. p.461,pl.Xv111.fig.2.--Harlan,Jour.Acad.Nat.Sci.Phila.,V1.1827.p.11 Phys.And Med.Res.,p.139--Holbrook,N.Amer.Herpet.,11,1842,p.101,pl.22.

Scincus bicolor,Harlan.--Jour.Acad.Nat.Sci.Phila.,1V,1824.p.286, pl.XV111.fig.1;--Phys.and Med.Res.,p.139;--Cuvier,Regne,Anim.,2ed. ed.11,1829,p.62.

Scincus americanus,Harlan.--Phys.and Med.Res.,p.139.

Tiliqua quinquelineatus,Gray.--Griffith's Cuvier's Anim.King. 1X,Syn.,1831,p.69.

Tiliqua bicolor,Gray.--Griffith's Cuver's Anim.Kingd.1X,Syn., 1831,p.69.

Pleistodon laticeps,Gray.--Cat.Liz.,1845,p.90--Duméril and Bibron, Erp.Gén.,U,1839,p.705--Holbrook,N.Amer.Herpet.,2nd.ed.,p.121 pl.XV111

Pleistodon quinquelineatum,Duméril and Bibron,part,Erp.Gén.,V, 1839,p.707;--Gray,Cat,Liz.Brit.Museum.,1845,p.91.--Gravenhorst,N. Act.Ac.Leop.Carol.,XX111.1851,1,p.350.pl.XXXV.

Scincus fasciatus,Holbrook,N.Amer.Herp.,2nd.ed.p.127pl.XV111 DeKay,New York Fauna.,111,p.29,pl.V111,fig.17.

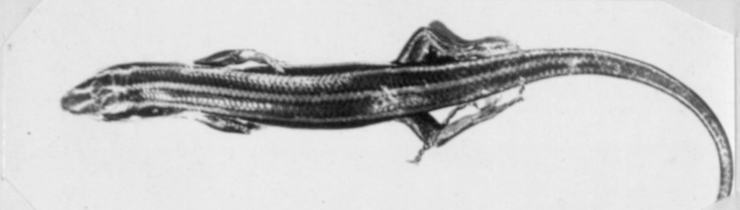
Eumeces laticeps,Peters,Monatsb.K.Akad.Weis.Berlin,1864,p.49; Bocourt,Miss.Sci.Mex.,Rept.1879,p.424,pl.XX11,D,fig.6.--

Mabuya quinquelineata,Fitzinger,N.Class.Rept.Vienna,1826,p.52.

Euprepis quinquelineata and fasciata,Wagler.--Syst.Amph.,1830 p.162

Euprepis de Casleby,Cocteau,Tabl.Syn.Scenc.,1837.

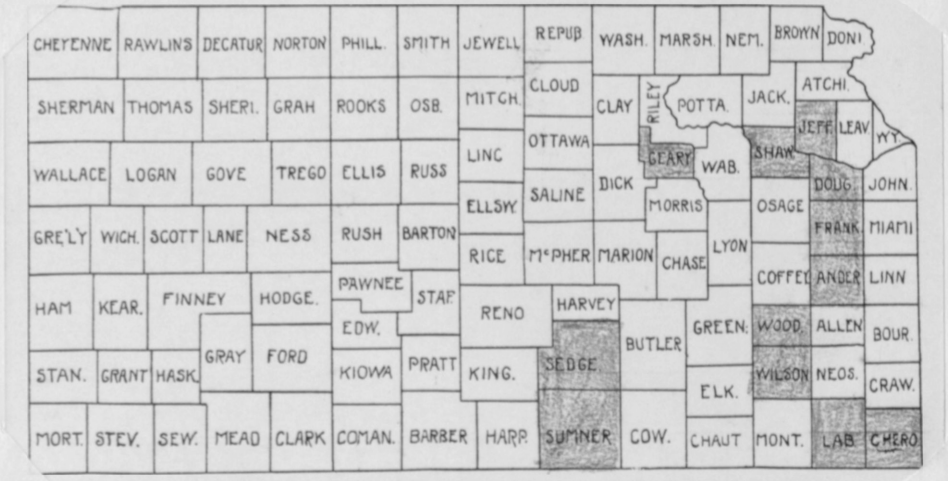
Pleistodon quinquelineatus and fasciatus,Holbrook:N.Amer.Herpet 11,1842,pp.121.127.pls.XV11,XV111.



Description:

Postnasal in full contact with supranasal. Fifth hind toe longer than second. In young and up to mature specimens, there are five equal andequidistant white lines on the dorsal surface, the twolateral on ~~dorsal~~ adjacent edges of two rows of scales. These lines become quite indistinct in the adult specimens. Males distinguished from females by having a much broader head in proportion to the body and markings more obscure.

Range: Localities from which specimens have been recorded in the state.



Habitat:

The habitat of the Eumeces group is practically the same thruout, and is also very coincident with that of Crotaphytus; the two lizards being often found under the same rock.

Quinquelineatus is usually found under flat rocks, logs, and the like on gently sloping hill sides, both of the timbered and barren types, differing in this respect from Crotaphytus. This lizard is able to force itself thru loose soil and sand, and is frequently found buried. It is oviparous, the ♀ remaining with the eggs until the blue-tailed young come forth. Its chief food is insects.

EUMECES OBSOLETUS, Baird and Girard.

SYNONYMY:

Eumeces obsoletus, Baird and Girard. Cope E.D. Nat'l. Museum Rept. 1898, p.646.--F.W. Cragin Trans. Kans. Acad Sc. vol. Vll. p 118, 1879-80. J.K. Strecker, Baylor Univer. Bull. vol, Xvlll, no.4, p.26.--Vernon Bailey, N.Amer Fauna, no.25, p.45.--Witmer Stone, Proc. Acad, Nat'l. Sci. Phila., Mar. 1911.

Eumeces obsoletus, Cope.--Check List of N.Amer. Reptiles, 1875, p.45 Bocourt, Miss. Sci. Mex, Rept. 1887, p.443, pls. XXlla, fig.4; XXlld fig.4; Cope E.D. Bull. U.S. Nat. Museum, no.17, 1880, p.39;--Boulenger, Cat. Liz. Brit. Museum, lll, 1887, p.374.

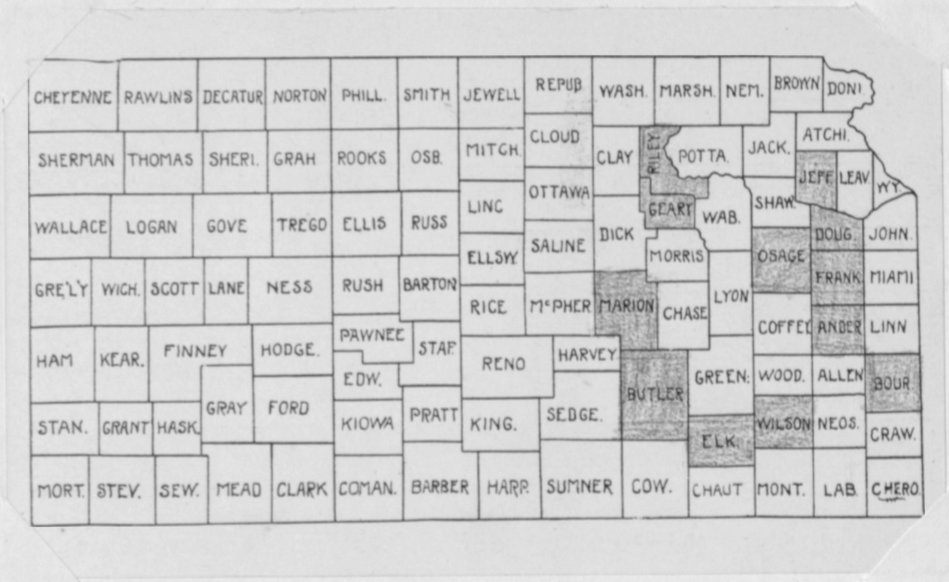
Pleistodon obsoletum, Baird and Girard, -Proc. Acad. Nat. Sci. Phila. 1852, p.129.--Hallowell, Sitgreave's, Exped. Zuni and Color. Riv., 1853 p.lll.---Baird, U.S. Mex. Boundary Survey Report, 1859, pl. XXV, figs. 9-16.

Description:

Postnasl in full contact with supranasal, when present. Fifth hind toe shorter than second. General ground color of the adult is pale ashen above, and blue on the sides; each scale having a darker border. The young are jet black except the tip of the tail which is brill

iant blue,and the labials which are white with dusky borders.Upon very close examination,five very faint white lines are visible on the dorsal surface.Obsoletus is the largest of the Kansas species of Eumeces,sometimes attaining a total length of twelve or more inches.Specimen No.61g in the Museum collection is 301 mm.in length

Range: localities in the state from which specimens have been recorded.



Habitat:

Practically the same as E.quinquelineatus--under flat rocks,logs along stone fences and ledges,in and away from wooded areas.

EUMECES GUTTULATUS,Hallowell.

SYNONYMY:

Cope E.D. Nat'l Museum Report 1898,p.645---F.W.Cragin,Trans. Kans.Acad.Sci.vol.V11,1879-80,p.117:--J.K.Strecker,Baylor Univer. Bull.vol.XV111,no.4.p.25.--Ditmars Reptile Book,p.200.

Eumeces guttulatus,Cope.--Check List of N.Amer. Reptiles,1875, p.45.--Boulenger,Cat.Liz.Brit.Museum,111,1887.p.369.

Lamprosaurus guttulatus,Hall.--Proc.Acad.Nat'l.Sci.Phila.,1852, p.206.--Sitgreaves Exped.Zuniand Color,River,1853,p.103,pl.1V.

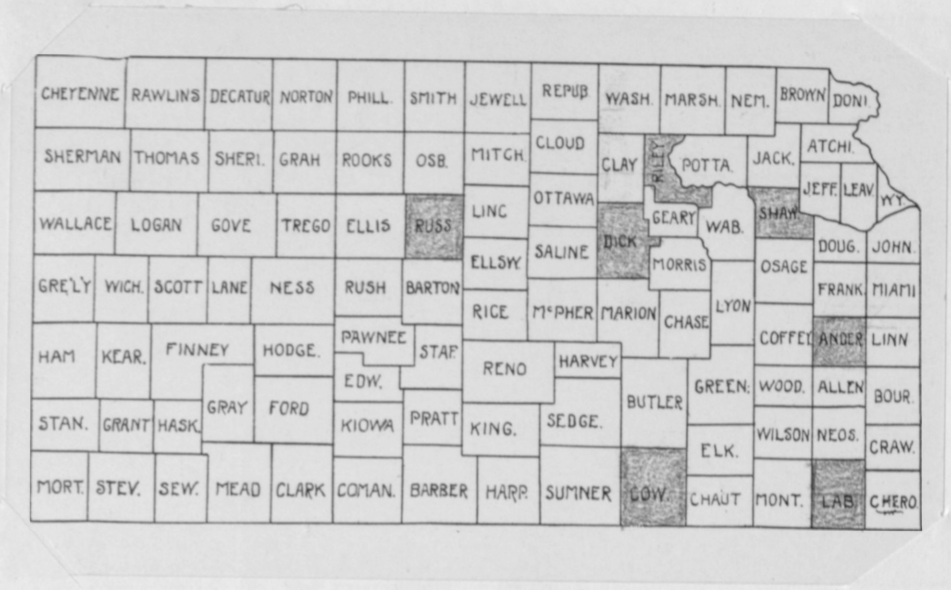
Pleistodon guttulatus,Hallowell,Proc.Acad.Nat'l.Sci.Phila.1857, p.215.

Description:

Resembles very closely the yonng of E.obsoletus,but is distinguished from same by being uniform black on the dorsal surface,and by having clear,regular,and well defined white spots on the labials.

In E.Obsoletus,the labials are white with dark borders ,while here the labialsare black with a definite white center.These white spots pass behind the ear,while in E.obsoletus they stop at the ear except in some cases where a single spot may occur on the hinder border.

Range:localities in the state from which specimens have been recorded.



Habitat:

Same as E.Quinquelineatus and obsoletus.

EUMECES EPIPLEUROTIS, Cope*

SYNONYMY:

Eumeces epipleurotis, Cope.-Nat'l. Museum Report, 1898, p.550.
Bull. U.S. Nat'l. Mus., no. 1870. p.40.

Description:

Very similar to E. quinquelineatus in head scutellations, the post-nasal being in full contact with the supranasal. The appressed limbs are separated by a space equal to the lenght of the fore foot.

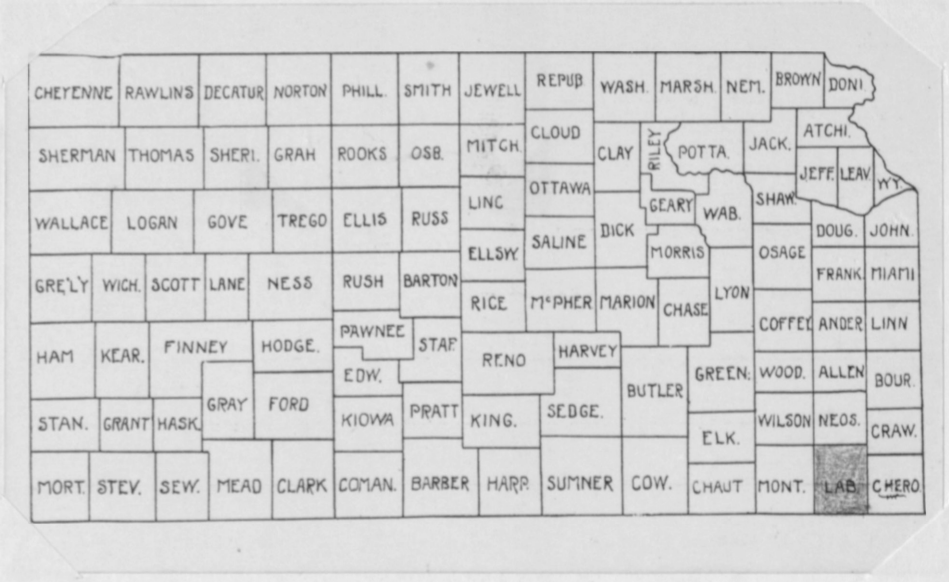
The chief distinguishing features between these two species are th smaller size of the former, E. epipleurotis, and their coloration. In epipleurotis the dorsal surface, for a width of six scales, is olivaceous with a very faint broken darker line running along the sides on the middle of the third row of scales. This line is separated by a light line of one scale width, being on the adjacent halves of the third and fourth rows, from a distinct dark band of one and one-half scale widths. This broad stripe is again separated from a faint line of one scale width, by a light line of the same proportions. This last dark line fades into the dark blue of the ventral surface.

All the lines are very distinct in thecervical region but fade into olivaceous black on the dorsal surface of the tail, the under surface of which is pale pinkish buff.

The under surface of the chin and the labials are straw colored

while the temporals are made darker by the prescence of numerous dark spots which are the anterior extremity of the broad dark band. There is a very indistinct light line on the adjacent edges of the two middle rows in the region of the neck but is lost mid-way to the tail

Range: the one locality in the state from which this species has been found and recorded.



Habitat:

This species is found in company with others of the Eumeces group described above.

*This is the first time that this species of Eumeces has been found and recorded in the state. The classification has been confirmed by Dr. Leonhard Stejneger of the U.S. Nat'l. Museum, thereby making the record an undoubted one. Cope records but one specimen in his works on the Crocodilians, Lizards, and Snakes of N. Amer. and that from Texas, while Hurte of Missouri, and Hay in his Report on the Batrach-

and Reptiles of Indiana,neither list the species as belonging to the fauna of their respective states.Considering these facts then, I hold that this record extends the known range for Eumeces epi-pleurotis from northern Texas to southern Kansas.

EUMECES LEPTOGRAMMUS, Baird.

SYNONYMY:

Eumeces leptogrammus, Baird. Cope E.D. Crocodilians, Lizards and Snakes of N.Amer., Nat'l. Museum Report, 1898.--J.K.Strecker, Baylor Univer. Sci. Bull. vol. XVlll, no.4. p.26.--Ditmars Reptile Book, p.197.

Eumeces leptogrammus, Cope --Check List N.Amer. Batr. And Reptiles, 1875, p.45.--Boulenger, Cat. Liz. Brit. Museum, lll, 1887, p.378.

Pleistodon leptogrammus, Baird. Proc. Acad. Nat'l. Sci. Phila., 1858. p.256.

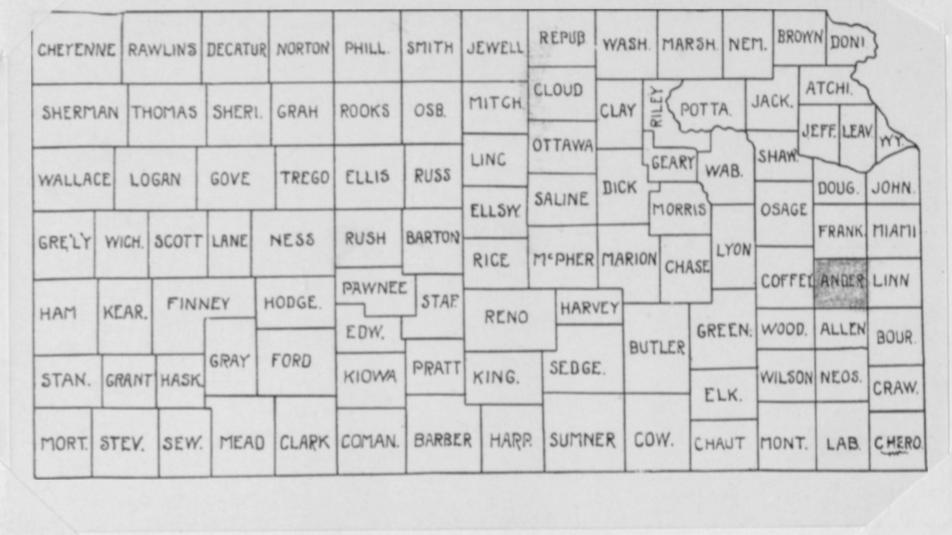
Description:

Scuta of head very similar to E. Quinquelineatus--internasal equal to prefrontal. Resembles very much the young of quinquelineatus, differing from same by the five lines being narrower, and less conspicuous; by the general darker color ; and by its longtail, which is approximately one and one-fourth times the head and body. Is distinguished from epipleurotis by the limbs touching when appressed.

General color black, lighter above and dark blue below. Chin, throat, and upper labials white. The Lateral lines are on the middle of one row, in which they differ from the lines of quinquelineatus, where they are on the adjacent halves of two rows. The dorsal line is on the adjacent halves of the two middle rows, while the first lateral stripes are wholly on the third row, being separated from median line by one and one-half scale width. The second lateral strip

is separated from the first by twoscales, thus separating the two mos lateral stripes from each other by eleven scales.

Range: This species has been recorded but from one locality which is given on the map below.



Habitat:

The habitat of this species does not differ in any respect from that of the forms described here-to-fore.

EUMECES MULTIVIRGATUS, HALLOWELL.

Synonymy:

Eumeces multivirgatus, Hall. Cope E.D. Crocodilians, Lizards, And Snakes of N.Amer., Nat'l. Museum. Report. 1898p. 653--F.W. Cragin, Trans. Kans. Acad. Sci., vol. 1X, p. 138; --J.K. Strecker, Baylor. Univer. Bull. vol. XV111, no. 4. p. 26.

Eumeces multivirgatus, Cope. Check list of N.Amer. Batr. And Reptiles 1875p. 45.

Pleistodon multivirgatum, Hall., Proc. Acad. Nat'l. Sci. Phila., 1857 p. 451.

Bleistodon inornatus, Baird: Proc. Acad. Nat'l. Sci. Phils., 1858, p. 256.

Eumeces inornatus, Cope; Check List of N.Amaer. Batr. and Reptiles, 1875, p. 45.

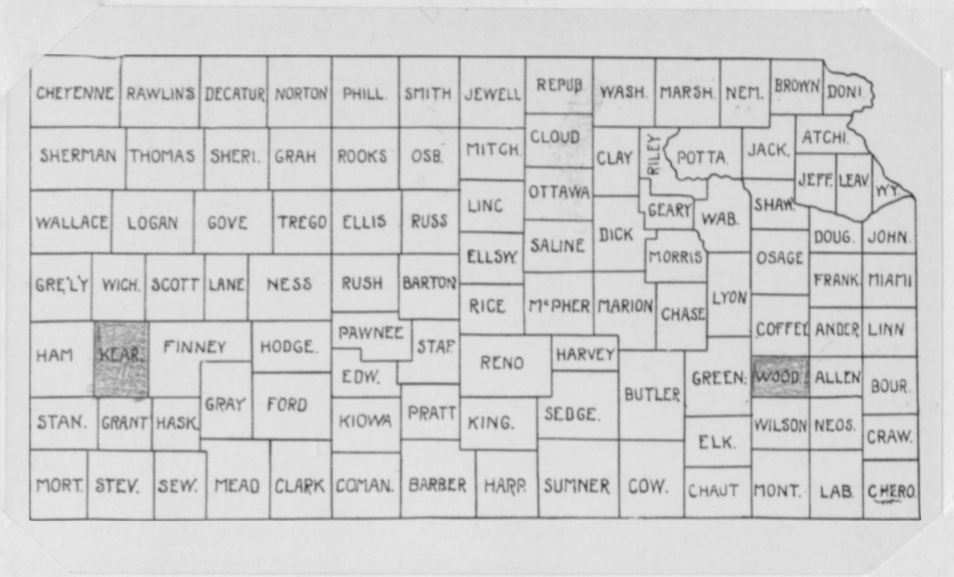
DESCRIPTION: (taken from Cope's Crocodilians, Lizards and Snakes of N.Amer.)

"Body cylindrical, slender; legs far apart. Head short; convex above; two post-nasals, usually of equal size, one exactly above the other. Seven upper labials. Tail one and one-half times head and body.

"Color pale olive, green or gray, lighter beneath and on the sides with four or five brown stripes on each side. Every row of scales striped with brown and the ground color. There is a narrow whitish stripe through the middle of the third row of scales from the dorsal line, the sides of the scales brown; above this line are two brown stripes, the inner wider; below it are three others, the middle the broadest and along the edge of the head."

This species is very similar to E. Leptogrammus, except that it has a shorter head, much more elongated body, and feebler limbs.

Range: The two localities are those given by Cope, Kearney Co., and F.W. Cragin, Woodson Co., vol. 1X, Trans. Kans. Acad. Sci. p. 136.



Habitat:

I have never collected this lizard so cannot with certainty speak of its habitat. However, judging from the fact that most Eumeces are found in very much the same habitat, and judging also from the fact that other specimens of this group contained in the collection are recorded from these same counties, I feel it within reason to state that multivirgatus is found under the same conditions as those given for the preceding species.

EUMECES SEPTENTRIONALIS,Baird.

SYNONYMY:

Eumeces septentrionalis,Baird. Cope E.D. Croc.Liz.Snakes of N.Amer Nat'l.Museum Report 1898,p.656.--F.W.Cragin,Trans.KansnAcad,Sci.vol. V11,1879-80,p118.--Ditmar's Reptile Book,p.199.

Eumeces septentrionalis,Cope. Check List of N.Amer..Batr.and Reptiles,1875,p.44.

Pleistodon septentrionalis,Baird:Proc.Acad.Nat'l.Sci.Phila.,1858, p.256;Rep't.U.S.Expl.Survey.Pac.R.R.,Pt.4,X,1859,p.18,pl.24,fig.2.

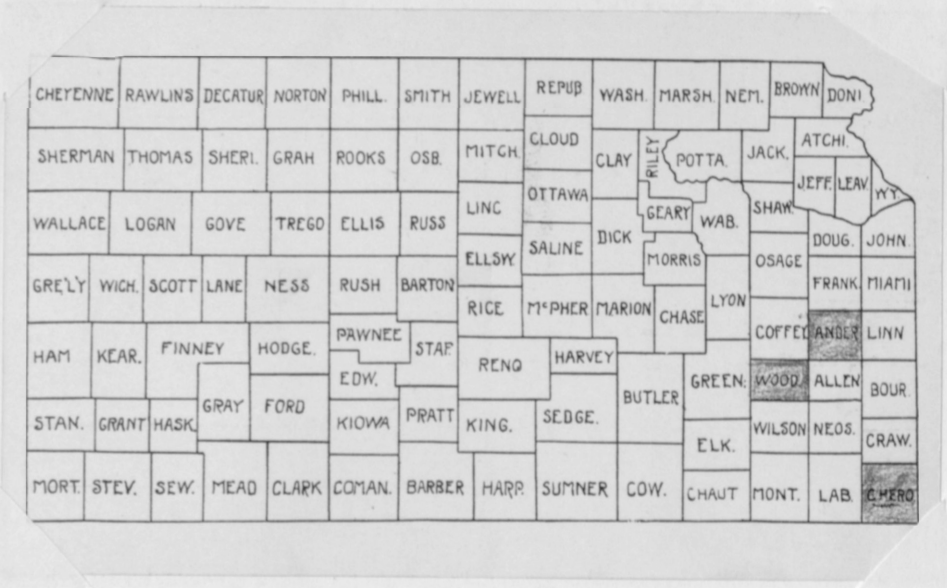
Description:

No post-nasal;Supra-nasals and prefromtals in contact,inclosing small internasal.Head,body,and tail very cylindrical.

Color,olive above with four equidistant and equal dark stripes on adjacent halves of rows.The two inner stripes are often very indistinct or completely absent.Below the last dark stripe,there is a very clear and distinct white line on the adjacent halves of the fourth and fifth rows of scales from the mid-dorsal.This is bordered below by a dark stripe which is much wider than the dorsal strips and is separated from the ashen gray belly by an inconspicuous light line.All the lines fuse on the tail,which is cinnamon colored,lighter on the end.The chin,throat,and labials are pinkish buff,

This species differs fundamentally from E.quinquelineatus,with which it is the most easily confused,in that the lower lateral white line passes above the ear and not through it,and the upper line is on the middle of one row and not on the adjacent halves of two.

Range:localities in the state from which this species has been recorded.



Habitat:

Same as that given for the Eumeces above.

EUMECES PLUVIALIS, Cope:*

SYNONYMY:

Eumeces pluvialis, Cope: Croc. Liz. And Snakes of N. Amer., Nat'l. Mus. Report, 1898, p. 663.--Bull. U.S. Nat'l. Museum, No. 17. 1880, p. 19--Ditmars Reptile Book, p. 200.--Boulenger, Cat. Liz. Brit. Museum. III, 1887, p. 367.

Eumeces anthracinus, Baird var. Cope: Proc. Amer. Phil. Soc., 1877, p63.

Description:

Post nasal absent and but four supra-orbitals. Appressed limbs overlap.

Color above black, below bluish. There are five very narrow but sharply defined light lines in the cervical region, but the mid-dorsa disappears posteriorly. This median line, which has its origin at the posterior border of the post-frontals is on the inner margins of the two middle rows of scales. The first lateral lines are separated from the mid-dorsal by three scale widths, These are on the inner margins of the fourth row from the median, and have their origin at the posterior margin of the orbit. The second or most lateral stripes are separated from the first by one and one-half scale widths. The chin and labials are slightly lighter than the remaining under surface; the throat being of the same color as the belly.

E. pluvialis belongs to the E. anthracinus group and is much blacker than any of the other species here described. It is very dimin-

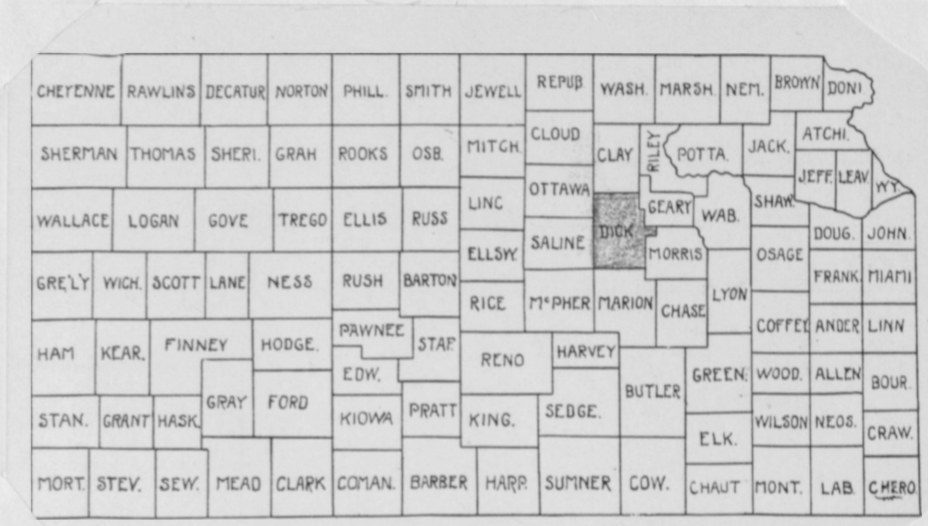
utive,but appears larger because of its extremely long tail, which is practically as long as twice the body.In the only specimen in the collection,the total length is 119 mm.,while the tail is 82 of these.

Pluvialis is distinguished from anthracinus by having a larger number of cephalic plates and labials,and a wider inter fronto-nasal:is distinguished from pachyurus by its well developed limbs,slender body,and extremely long slender tail; & from brevilineatus by the higher loreals and the color being entirely different.

Range:The locality here given is the only one in the state, but in itself extends the range according to knowledge at hand approximately two-hundred miles north,and four-hundred miles west.Cope in his"Crocodilians,Lizards and Snakes of N.Amer." says,"But one specimen of this species is known.It was taken near Mobile,Alabama,by Dr.Joseph Corson,U.S.A.,well known by his important additions to Eocene vertebrate paleontology.It is preserved in my private collection".

*The determination of this specimen has been confirmed by Dr. Leonhard Stejneger of the U.S.Museum.

Range: the one locality in the state from which this species has been recorded



LIOLEPISMA LATERALE, Say.

Synonymy:

Liolepisma laterale, Say. Cope, Croc. Liz. and Snakes of N. Amer., Nat'l. Museum Report, 1898, p.622.--J. Hurter, Herpet. Of Mo. vol. XX, no. 5, p.143.--J.K. Strecker, Baylor Univer. Sci. Bull. vol. XVlll, no. 4, p.25.--Vernon Bailey, N. Amer. Fauna. no. 25, p.45. Witmer Stone, Proc. Acad. Nat'l. Sci. Phila., Aug. 1903.

Liolepisma laterale, Dumeril and Bibron, Erp. Gén., V, 1839, p.719.--Holbrook, N. Amer. Herpet., 2nd. ed. 11, 1842, p.133. pl. XlX. Boulenger, Cat. Liz. Brit. Museum, 1885, lll, p.263.

Scincus lateralis, Say.--Long's Exedd. Rocky Mt. 11, 1823, p.324--Harlan, Jour. Nat'l. Sci. Phila., V, 1825, p.221; Vl, 1828, p. 12.--Holbrook, N. Amer. Herpet., 1836, 1. p.71, pl. Vlll.

Scincus unicolor, Harlan, Jour. Acad. Nat'l. Sci. Phila., 1825, pp.156, 221.

Oligosoma gemmingerii, Cope. Proc. Acad. Nat'l. Sci. Phila., 1864, p.180.

Oligosoma laterale, Cope. Check List N. Amerr. Batr. and Rept. p.39.

Oligosoma laterale, Say. F.W. Cragin, Trans. Kans. Acad. Sci. vol. Vll. 1879-80. p.118.

Lygosoma (Mocoa) lateralis, Bocourt, Miss. Sci. Mex. Report., 1881, p.446, pl. XXll, fig. 3.

Lygosoma laterale, Say. O.P. Hay, Batr. and Reptiles of Indiana 17th Ann. Report on the Nat'l. Resources of Indiana, 1891, p.547. O. P. Hay, Proc. Biol. Soc. Wash. vol. XV? p.135.--Ditmars Reptila Book p.203.

Mocoa lateralis,Gray,Cat.Rep.Brit.Museum,1845,p83.--Guenther, Biol.Central Amer.p.31.

Lygosoma (Mocoa) gemmingerii,Bocourt, Miss.Sci.Mex.Rept. p.449.

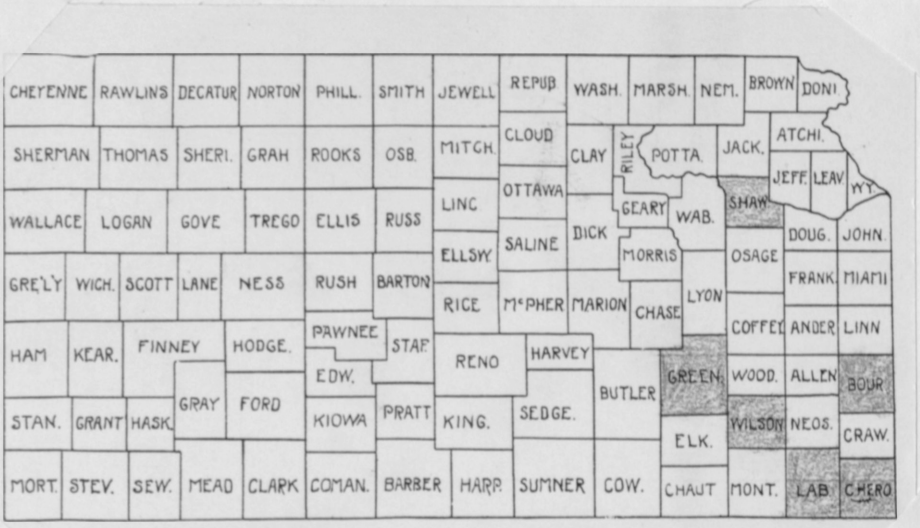
Description:

Body very slender,tail thick at base,but very long,being more thanone and one-half times the length of the body plus the hea Limbs very poorly developed,hind legs when applied forward three times reaching only to the ear.The average total length of five normal specimens was only 125 mm. Scuta on the head very smooth,frontal in contact posteriorly with vertical and anteriorly with rostral:post-nasal and one loral in contact with post frontal.

Color on dorsal surface for a width of six rows of scales varies from dark bronze to pale olive.In some specimens there are two dark broken lines in the mid-dorsal region located on the outer edges of the two median rows.Bordering the broad dorsal strip,there is a very definite dark band which is on the lower half of the fourth row and the entire fifth row.This band has its origin at the rostral,passes through the eye, above the ear,and insertions of both fore and hind limbs and is continued well back onto the tail.Below this there is a light line of about one scale width beyond which there is a gradual shading into the bluish slate color of the belly.In

several specimens,numerous fine dark lines can be distinguished in this region.The neck is the same color as the belly, while the chin,pectoral,and anal regions are white.

Range:Localities in the state from which specimens have been recorded.



Habitat:

Usually fond in and among leaves lying on the ground, under logs,stones and the like, and sometimes in trees. I consider however their occurrence in trees as more or less accidental. I.have observed them in trees,but circumstances were such that they may have been driven ther as a last resort.They are very good climbers,running about on the trunk and limbs with as much agility as when on the ground.Their sole aim seems to be to keep out of your reach,regardless of what may be in their path.I have known them to run across their pursuers leg,up and down his back,even taking advantage of his inability to reach them by remaining on his back for some little period.

SUB-ORDER--SAURIA

FAMILY--TEIIDAE

Urinary bladderabsent;very peculiar mesenteric attach ment of the liver,being but one suspensor,a median gastro-hepatic,but this divides above the middle of the organ,and each half diverges,and adhering to the caudal margin,extends to the lateral inferior wall on each side.

Fore limb consists of humerus and rudimental ulno-radius.

The pelvic arch consists of a slender costiform bone,directed downwards and forwards from the diapophysis of a single vertebra.It is homologous wholly or in part with the ilium.

GENUS--CNEMIDOPHORUS

"Scaly portion of the tongue arrow-headed,bifed and not retractile posteriorly;tail rounded; teeth longitudinally compressed;head shields large,regular;ventral shields in less than twenty longitudinal rows".Wagler--from Cope

CNEMIDOPHORUS SEXLINEATUS,Linn.

Synonymy:

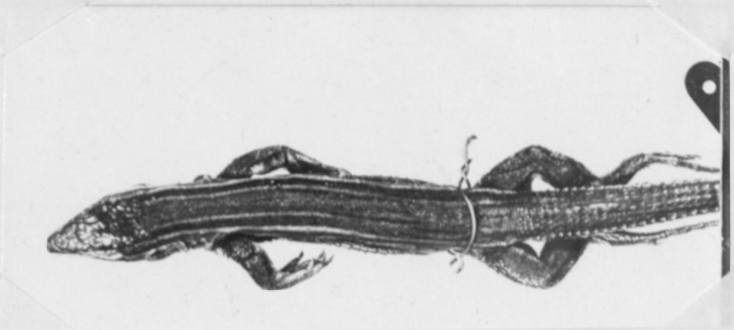
Cnemidophorus sexlineatus,Linn--Cope E.D. Croc.Liz.And Snakes of N.Amer.1898,p.593.--J.Hurter.Herpet.of Mo.vol.XX,no.5, p.139:--F.W.Cragin,Trans.Kans.Acad.Sci.,vol.Vll,1879-80,p.117, J.K.Strecker,Baylor Univer.Sci.Bull.vol.XVlll,No.4,p.24,--O.P. Hay,Batr.and Rept.of Ind.,17th Ann.Rept.on the Geol.and Nat'l. Resources of Ind.,1891,p.545.--Vernon Bailey,N.Amer.Fauna,no.25, p.44.--F.W.Cragin,Bull.Wash.Lab.of Nat'l.Hist.,vol.1,no.1,p.8. O.P.Hay,Proc.Biol.Soc.Wash.,vol.XV,p.134,--Witmer Stone,Proc. Acad.Nat'l.Sci.Phila.,Mar.1911. -Ditmer's Reptile Book,p.188

Cnemidophorus sexlineatus,Gray.--Cat.Liz.Brit.Museum,1845,p. 21.--Duméril and Bibron,Erp.Gén.V,839,p.131.--Duméril,Cat,Meth. Rept.1851,p.176.--Cope,Check list N.Amer.Batr.and Rept.,1875, Trans.Amer.Phil.Soc.,1892,p.42,pl.lX,fig.7,--Bocourt,Miss,Mex. Sci.Rep't,1874,p.273,pl.XX C,fig.11.--Boulenger,Cat.Liz.Brit. Museum,11,1885,p.364.

Lacerta sexlineata,Linn.;Syst.Nat.,12th.ed.,1,1766,p.364. Gmelin,Syst.Nat.,1788,p.1074,--Latreille,Hist,Nat.Rept.1,1801, p.242.--Daudin,Hist.Rept.111,1802-03,p.183,--Harlan,Journ.Acad. Nat.Sci.Phila.,Vl,1827,p.118.

Ameiva sexlineata,Holbrook,N.A.Herpet,1,1838,p.63;1842,p.109.

Cnemidophorus sexlineatus,Duméril and Bibron,Erp.Gén.v.1839, p,131--Aug.Dumeril,Cat.Liz.Col.Rept.,1,1851p.116.



Description:

Head short and broad averaging a little less than half as wide(from outer margin to outer margin of the orbit),as long (from snout to posterior border of head scutes).Body very elongate and is covered on the back and sides with very minute scales The abdomen is covered with very large oblong scales in eight regular rows.The tail is very long and cylindrical,and is covered with large verticillated scales,carinated above and smooth below.

The post-ante-brachial scales are of equal size,differing in this respect from C.gularis gularis,which has two rows enlarged.

The coloration in the specimens examined from the Kansas Fauna,is very constant,conforming in general to the following. There are six very distinct white or yellowish longitudinal line on the bluish black dorsal surface(the dorsal surface may become a vivid green).The two most dorsal of these stripes have their origin at the posterior limits of the head scutes,while the remaining four,two on each side,originate at the posterior margin of the orbits.The first lateral arises in the superciliary region,while the second arises at the inferior orbital bor-

der and passes just through the upper margin of the ear. Of these stripes, only the two first lateral extend back on the tail. There is a faint trace of still another lateral line anterior to the fore leg, but is not distinguishable on the sides. There is a dark line extending from on the posterior femoral region of the leg for a short distance onto the base of the tail.

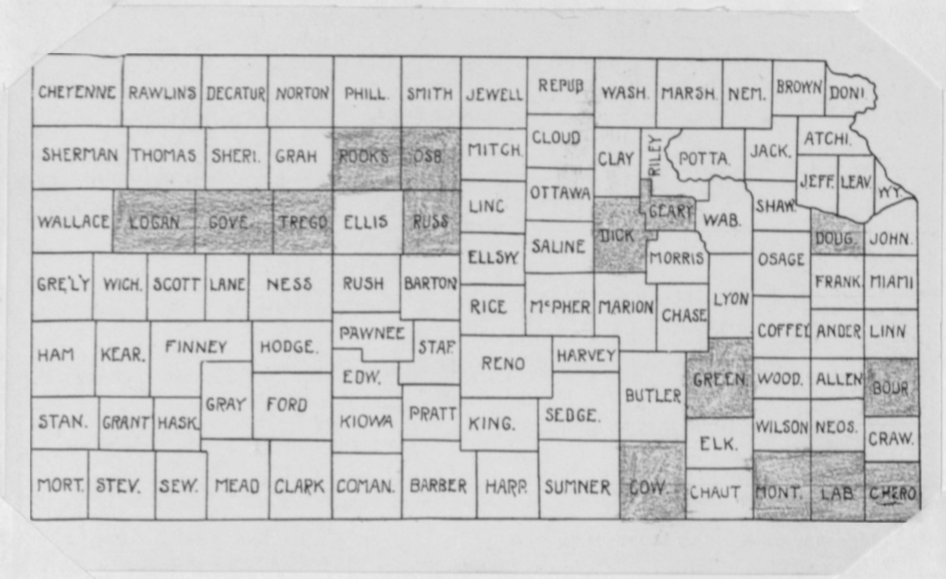
The fourth hind toe is very long, being equal to the distance from the snout to the posterior border of the ear.

Six specimens of C. sexlineatus measured, averaged 188 mm. in length and 14 mm. in width, while four specimens of C. gularis gularis from Texas averaged 273 mm. in length, and 20 mm. in width There is also a wide difference in the coloration of these two species, the most marked being a row of very distinct, round, and regular white spots between the longitudinal rows in gularis, except the two median.

TABLE SHOWING THE COMPARATIVE MEASUREMENTS OF SEXLINEATUS AND GULARIS

	number of specimen	length in mm.	width in mm.	
CNEM. SEX.	140	170	14	Ave. l. 188 mm. w. 14 mm.
	?	205	12	
	?	213	16	
	?	180	13	
	?	177	15	
	131a	185	15	
CNEM. GUL.	148a	340	21	Ave. l. 273 mm. w. 20 mm.
	148b	261	17	
	145a	240	20	
	145b	251	21	

Range:localities in the state from which specimens have been recorded.



Habitat:

This lizard,commonly called swift,is usually found around regions of scanty vegetation where gravel,small stones,and the like occur.They are often found along railways and wagon highways.Very seldom found under an object,rather they are usually seen with but a glance as they dart across your path or an open space where the vegetation will not conceal them.

My experience with this lizard has been that it is strictly a ground lizard,having never observed it except that it was on the ground,but O.P.Hay states in his report"The Batrachians and Reptiles of the State of Indiana",that he was informed by Rob't Ridgeway of the National Museum that hehad observed this lizard onthe limb of a tree standing near the water and that it jumped from the tree into the water and swam ashore.

Its food consists chiefly of insects which it procures by lying in wait until the prey comes within reach,when it will dart forward and seize the insect before it has a chance to make good its escape

CNEMIDOPHORUS TESSELATUS TESSELATUS, Say.

Synonymy:

Cnemidophorus tesselatus, Say: F.W.Cragin, Trans.Kans.Acad.Sci. vol.1X, p.137, 1883-84.--

Cnemidophorus tesselatus, Baird: U.S.Pac.R.R.Sur., X, 1859, Gunnison's report, p.18.--Cope Check List Batr.and Rept.N.Amer., p.46.

Cnemidophorus tesselatus tigris, Cope. Cope Check List Batr. and Rept.N.Amer.p.46, 1875.

Cnemidophorus gracilis, B.& G.--Proc.Acad.Nat'l.Sci.Phila., 1852 p.128---Baird U.S.Mex.Bound.Survey, Rept.11, pt.2, Reptiles, p.10, pl.XXXlV, fig's.7-14.

Cnemidophorus marmotus, B.& G. Proc.Acad.Nat'l.Sci.Phila.1852 p.69--Baird, U.S.Mex.Bound.Survey, Report, 1859, 11, pt.2, Reptiles, p. 10, pl.XXXlll.

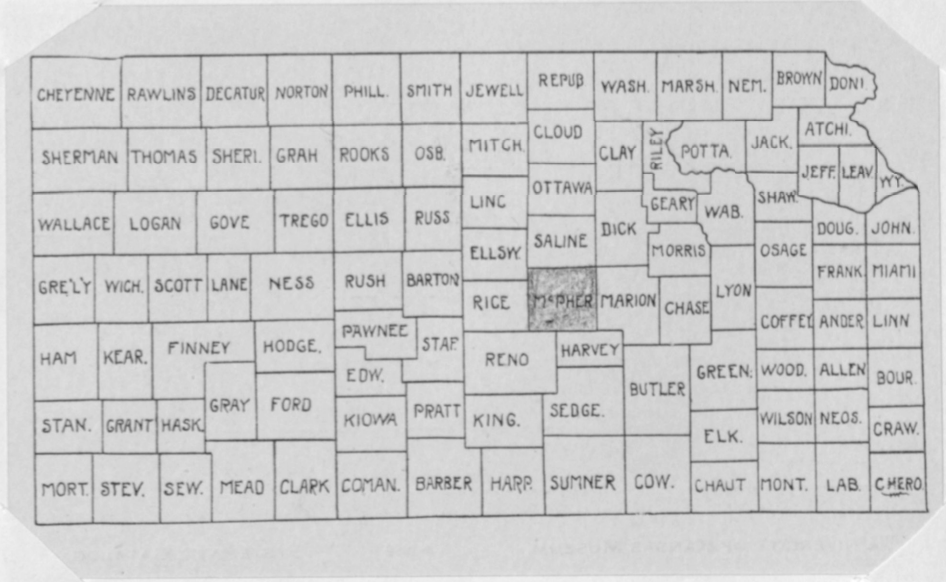
Cnemidophorus undulatus, Hall. Proc.Acad.Nat'l.Sci.Phila., Vll, 1854, p.94.

Ameiva tesselata, Say:--Long's Exped.Rocky Mts., 11, 1823, p50.

Description: Taken of specimen contained in the collection in the Museum but accompanied by no data.

This species conforms very closely to the description of C.sexlineatus, as far as cephalic characters and general arrangement of scales over the body are concerned. It is distinguished from the same however by the prescence of many very small scutes in the post-orbital, gular, and anal regions; by the prescence of approximately three rows of dots on the sides replacing the most lateral stripe; by the prescence of but four longitudinal stripes and by the fact that the parietals are larger then the fronto-parietals. Further, this sub-species of tesselatus is distinguished from the other sub-species, by the prescence of but four longitudinal stripes, except C.t.multiscutatus, from which it is distby the fact that there are 7-8 rows of brachial scales in the latter as opposed to 4-5 in the former

Range: the locality from which F.W.Cragin lists his specimen.



Habitat:

Same as that given for C.sexlineatus.

SUB-ORDER-SAURIA

FAMILY-ANGUIDAE

Tongue composed of two portions-a heavy posterior and a flexible anterior portion.Limbs more or less developed or entirely absent externally,with the rudiments of the pectoral and pelvic arches always present.Abdominal ribs are wanting.A peculiarity in the head shields,here present,differentiates the Anguidae from most of the Scincidae.

Genus--Ophisaurus:

A premaxillary foramen;anterior limb of interclavicle wanting;a lateral fold of the integument present;limbs absent.Deep lateral groove from near head to anus,soft fold within occupied with flexible skin,which connects the dorsal and ventral sheets of plates,the ventral extending up over and hidin the edge of the dorsal sheet.

Plates over the body are quadrate and are arranged in transverse series,which on the tail makes possible the breaking off of this member very simple.

OPHISAURUS VENTRALIS VENTRALIS,Linn.

Synonymy:

Ophisaurus ventralis ventralis,Linn. Cope E.D. Croc.Liz.and Snakes of N.Amer.,Nat'l Museum Report .1898,p.494.--

Ophisaurus ventralis,Linn.;J.Hurter,Herpet.Mo.vol.XX,no.5, 1911,p.136.--J.K.Strecker,Baylor Univer.Bull.,Amph.And Reptiles of Texas,vol.XVlll,no.4,p.23,--O.P.Hay,Batr.And Reptiles of Indiana,17th Ann.Report on the Geol.And Nat'l,Resources of Ind. 1891,p.544.--Vernon Bailey,N.Amer.Fauna,no.25,p.44.--Ditmar's Reptile Book,p.118.

Ophisaurus ventralis,Daudin,Hist.Rept.,Vll,p.352,pl.LXXXVlll, Oppel,Ordn,Rept.,1811,p.45.--Cuvier,Régne.Anim.,ll,1817,p.59. Fitzinger,Neue.Class.Rept.,L826,p.50.--Harlan,Jour.Acad.Nat.Sci. Phila.,1827,V,p.346.--Wagler,Syst.Amph.,1830,p.159,--Gray,Syn. Rept.Griff.Cuv.lX,1831,p.65.--Weig.Herpet.Mex.,1834,p.11.-- Dumeril and Bibron,Erp.Gen.,V,1839,p.423.--Duvenoy Regne.Anim. Rept.,pl.AXlv,fig.7.--Holbrook,Amer.Herpet.,2nd.ed.,ll,1842 p.139,pl.XX.--Dumeril,Cat.Coll.Rept.,1851,p.144.--Yarrow,Bull. U.S.Nat.Museum.,no.24,p.46.--Boulenger,Cat.Liz.Brit.Museum,1885, ll,p.281

Anguis ventralis,Linn.,Syst,Nat.12th.ed.,ll,1766,p.391. Doundorf,Zool.Beytr.,lll,p.267.--Shaw,Gen.Zool.,lll.pl.2,p.584. Latreille,Hist.Nat.Rept.lv,p.223.

Chamaesaura ventralis,Schneider, Hist,Amph..ll,1804,p.215.

Hyalinus ventralis,Merrem,Teut,Syst.Amph.,1820,p.79.

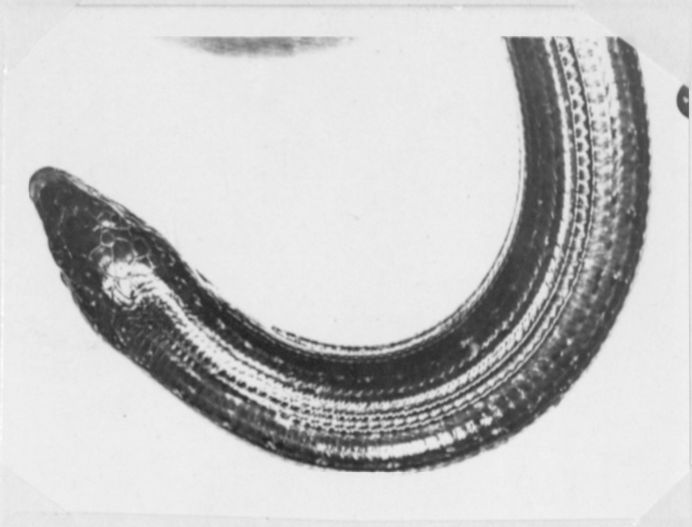
Anguis fragilis,Gmelin.,Syst.Nat.,1798,p.1112.

Ophisaurus punctatus,Cuvier.,Regne Anim.,2nd.ed.ll,1829,p.70.

Ophisaurus lineatus,Gray,Cat.Slender Tongued Saurians,Ann.Mag., 1,1838,p.391.

Ophisaurus striatus,Cuvier,Règne Anim.,2nd.ed.11,1829.p.70.

Ophisaurus ventralis,Hall. Proc.Acad.Nat.Sci.Phila.,V111, 1856,p.239,1856,p.307.



Description:

The large symmetrical frontal plate with the long pentagonal interparietal posteriorly adjacent,which in turn is bordered laterally by a long narrow parietal three times as long as wide, is present in all specimens examined.The frontal plate is separated from the superciliary ridge by two series of scales;the supra-orbital four in number,and the syperciliary scales.

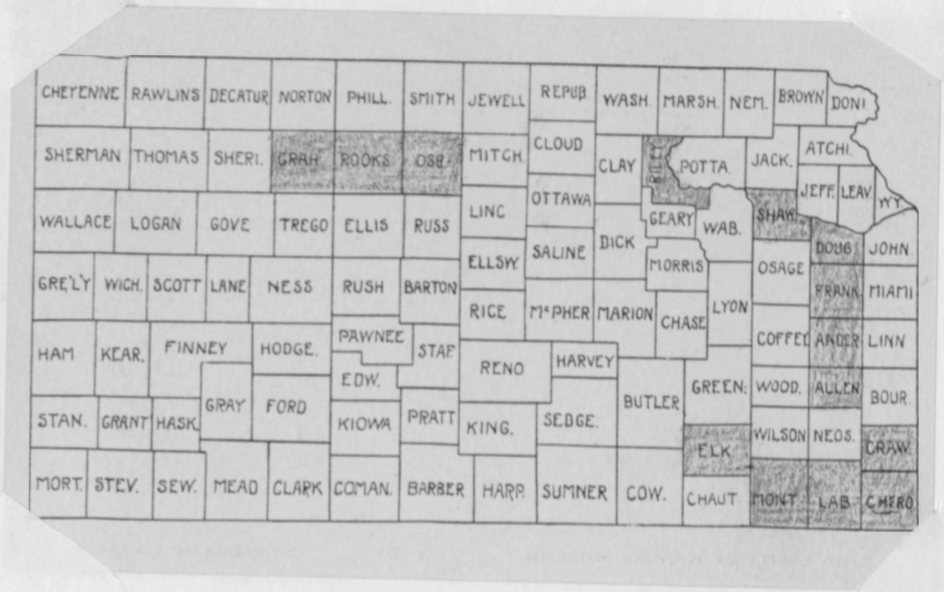
There are twenty-six rows of scales around the body.Sixteen on the dorsal side and ten below the groove on the ventral side. There are seven or eight,usually eight,preanal scales which are larger than the abdominals.

The coloration here exhibits the widest variation.From those with an almost solid brown dorsal surface,thru all the intermediate steps,to those with the dorsal surface light blue green

with only faint longitudinal lines,the steps are very intermediate.An examination of the specimens in the collection in the Museum,leads me to believe that the markings become less distinct but heavier as the specimen grows older.In placing the specimens in two groups,the ones showing the extreme heavy markings in one group,and those displaying the faint markings in the other,it was very evident that those in the former category were for the most part much more mature than in the second lot.The intermediate steps noticed were those specimens presenting large lateral spots with two heavy almost continuous tran verse stripes on the sides,with large dorsal spots;those,marked with three rather thick lateral stripes,with a median dorsal str ipe;those having three rows of large lateral spots and none dorsal;those with four lateral and one dorsal;one lateral and one dorsal;one heavy lateral and no dorsal;and those having but one very faint lateral and a broken dorsal.

In contradiction to Copp.498,I find the spotted variety which he speaks of, to be quite as plentiful among the Kansas specimens as the strip furthermore both the variety with sixteen rows of dorsal scales(no.214 a&b),and the variety with but fourteen rows(no's.210a,218a,220a,221a,224a,b,c,& d.) are found in the collection here.

Range:localities in the state from which specimens have been recorded.



Description:

Usually found around weeds,grass,or small grain patches. Specimens have been taken from under rocks,along rock fences, under shocks of small grain,and places of similar nature,butthey are more often found gliding very quickly thru the grass or weeds Their food consists largely of insects,but snails also form an important item in their menu.

The popular stories,concerning the ability of this specimen, commonly called Joint Snake,to break itself up into numerous pieces or joints when struck or roughly handled,and then to reunite them at some later time,are absolutely false,However, I must admit that there is some ground for the former part of the story,but the complete story as usually told is nothing more tha an outgrowth from some ones vivid imagination.

The physiological processes,necessary for the accomplishment of the second portion of the tale, are absolutely impossible

or at best,inconceivable,when the full significance of the process is considered.

As an explanation of their ability to break themselves up into small pieces,I wil say,first,that it must be understood that this lizard is wonstructed of a very peculiar connective tissue and that the posterior two-thirds of its being,is its tail. The connective tissue just mentioned will permit the lizard to break its tail up into innumerable pieces,but should a break occur thru the body cavity,the death of the individual would soon follow.Further,this lizard has the power of regeneration of new parts,and will therefore gradually reproduce a new tail.

This new tail brings up another very interesting story which may not be out of place here,as it is this regenerated part that is so often spoken of as the spike,so characteristic of the"Hoop Snake".

The regenerated tail,being of new tissue,is of course very noticeable,and when considered with the very different nature of its owner as compared with the true snakes,leads the unknowing to decide that the specimen before him is a "hoop snake", since this mythical snake is said to have a spike on the end of its tail,which it places either in its mouth or in a pouch on the side of the jaw when forming the "hoop"

Perhaps the most evident and conclusive characteristic,which distinguishes this leg-less lizard from the true Ophidia is the prescence of numerous (usually 10) rows of ventral scales in the place of the single ventrals of the snakes

ORDER-TESTUDINATA(CHELONIA)

Scapular and pelvic arches within thoracic and abdominal bones.A para-occipital and large prescapula present. No.supramastoid,or precoracoid;coracoid free from sternum behind,ribs one-headed and inter-central.

SUB-ORDER-THECOPHORA(LAMINIFERA)

Body covered with horny plates arranged independently of the plates below.Jaws covered with horny sheath,not concealed ander fleshy lip.

FAMILY-TESTUDINAE

Head completely retractile,plastron hinged.

GENUS-CISTUDO

Feet club shaped,or sparsely webbed-carapace short and globular,is united to the plastron by a cartilaginous lateral suture.Plastron is hinged across the middle.

GENUS-CHRYSEMYS

Alveolar surface of the jaws,narrow;alveolar groove well marked,except in front.Toes,strong, broadly webbed and spreading,hind feet largest. Carapace rather flat.

GENUS-Malacoclemmys

Alveolar surface of the jaws smooth,deep groove in front parrt of the upper;toes short,head cov erd with soft skin.Plastron and carapace immovably united by a bony symphysis.No hinge across the middle of the plastron.

CISTUDO ORNATA,AGASSIZ.

SYNONYMY:

Cistudo ornata,Agass. Cont.to the Nat'l.Hist.of the U.S.1, p.445,pl.111,figs.12,13(type in the Museum Comp.Zool.,Cambridge, Mass.;Locality of type,Upper Mo.and Iowa.--Cope,Bull.U.S.Nat'l. Museum,1.1875,p.53;Bull.U.S.Nat'l.Museum,17,1880,p.13.--True in Yarrow,Bull,U.S.Nat'l.Museum,24,1883,p.37.--Garman,Bull.Essex Inst.,XV1,1884,p.10.--Boulenger,Cat. of Chelonians in the Brit. Museum 1889,p.118.--H.Garman,Bull.Ill.State Lab.Nat.Hist.,111, 1892,p.226.--C.P.Hay,Batr.And Reptiles of Indiana,17th Ann.Rept. Geol.And Nat'l. Resources of Indiana.1891,p.595.--

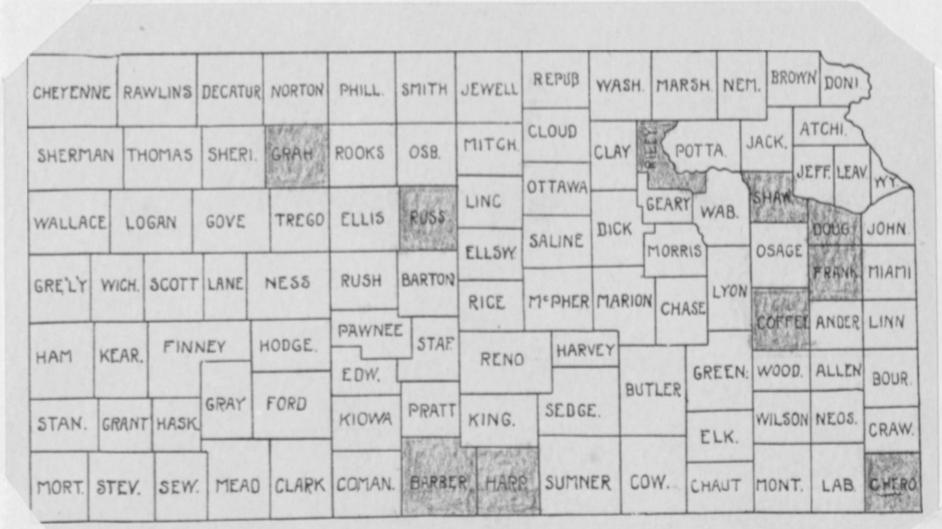
Terrapene ornata,Baur,Sci.Xv11,1891,p.191;Amer.Naturalist 1893,p.678.

Description:

Both fore and hind feet have four claws, carapace without keel brown or black with yellow radiating lines or spots. In nine-specimens examined, the ground color was black and the markings were yellow; in three others, the opposite was true-yellow ground color with black markings. There were four intermediart specimens in which the markings and grond color were of equal degree.

The head is dark with large spots, ranging from red to yellow, while the neck is marked very similarly. Fore limbs may also have the red to yellow markings.

Range:



Habitat:

Usually found away from water, except that they may be found around muddy or damp places. Common in meadows, pastures, grain fields and the like where they procure the larger part of their food by robbing the bird nests which are built on the ground.

I have personally found them in the act of feasting on the eggs of Colinus v. virginianus, Sturnella magna, and Spiza americana

The winter is passed in the burrows and dens of the differ-

e

ent burrowing mammals;under large rocks,brush piles,stone fences and places of a similar nature.Three specimens were taken from a den ofMarmota m.monax in mid-winter in Douglas Co.,and one from the deep under-ground nest of Sigmodon hispidus texanus in Cherokee Co.on the 6th of Janurary,1916.

CISTUDO TRIUNGUIS,AGASSIZ.

Synonymy:

? Emys kinosternoides,Gray,In griff.Animal Kingdom,1X,Append. p.12;Synopsis Reptilium,1831,p.32.

Emys cinosternoides,Dumeril et Bibron, Erpètologie Général, 11,p.303;1X,1854,p.227.--Dumeril Muséum d' Historwe Naturelle, Catalogue Methodique de la Collectio des Reptiles,1851,p.12.

Emys(Emyoides)kinosternoides,GrayCat.of the Tortoises of the British Museum,p.27.

Cistudo triunguis,Agass.Cont.to the Nat'l.Hist.of the U.S.,1. p445,pl.V11,(type in the Museum Of Comp.Zool.Cambridge Mass;loca ity of type,Louisana)--Garman,Bull.Essex Inst.,XV1,1884,p.16.

Terrapene carinata(part)Stranch,Mun.Acad.Sci.St.Pertersburg, (7)V111,no.13,p.45.

Cistudo clausa(sub-species triunguis)Cope,Bull.U.S.Nat.Mus. p.53.

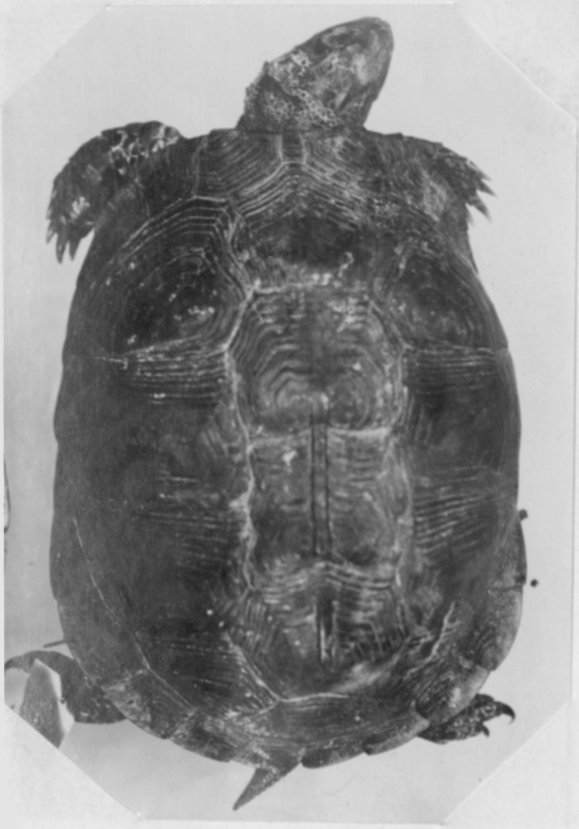
Cistudo carolina Triunguis,True,in Yarrow,Bull.U.S.Nat.Mus. 24,p.37.

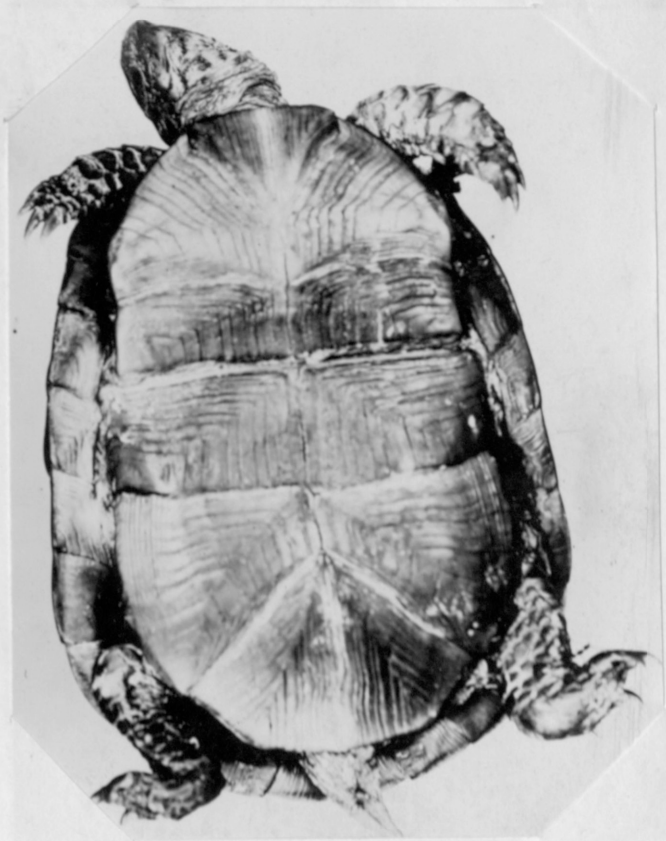
Cistudo carolina,var,cinosternoides,Boulenger,Cat.of Chelonians in Brit,Mus.p.117.

Cistudo carolina(part)Stranch,Mun.Acad,Sci.,St.Petersburg,(?) XXXV111,2,p.62.

Terrapene cinosternoides,Baur,Sci.XV11,1891,p.191.

Terrapene triunguis,Baur,Amer,Natural,1893,p.677.

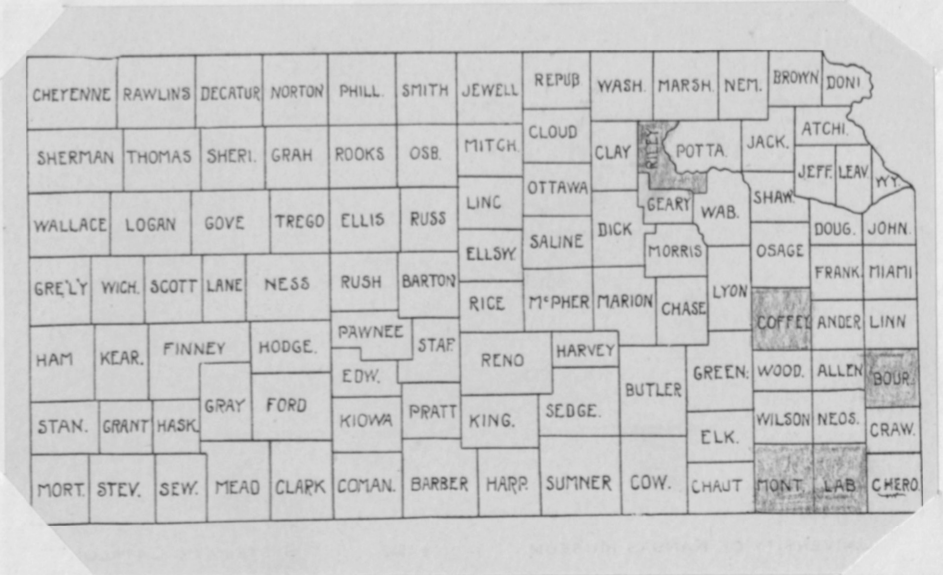




Description:

The description of C.ornata applies very well here except there are but three claws on the hind foot;the markings are usually lost in the light to dark olive ground color;and there is usually present (all Museum Specimens) a small cervical marginal plate.

Range:



Habiata:

This is more of a desert or arid region inhabitant than C.ornata.Very common in the Western half of the state.C.D.B.

CHRYSEMYS BELLI, GRAY.

SYNONYMY:

Chrysemys belli, Gray. Cragin, Trans. Kans. Acad. Sci. vol. 1X, 1883-1884, p. 137.--Bull. Wash. Lab. vol. 1, no. 3, p. 101, --Hurter, Herpet. of Mo. p. 237, 1911--Ditmar's Reptile Book, p33--O. P. Hay, Batr. And Rept. of Indiana, 17th Ann. Rept. Geol. and Nat'l. Res. of Ind. p. 594.--Gray, 1855, p. 2533--Agassiz, Cont. to Nat'l. Hist. of U. S. 1857, p. 439.

Chrysemys oregonensis. Cragin, Trans. Kans. Acad. Sci. vol. V11, 1881

" cinerea var. belli, Boulenger, Cat. Chel. Brit. Museum. 1889, 84, 74.

Chrysemys miltaltii

" pulchra,

" picta part,

Clemmys oregonensis,

Clemmys picta, var. B. & G.

Emys oregonensis

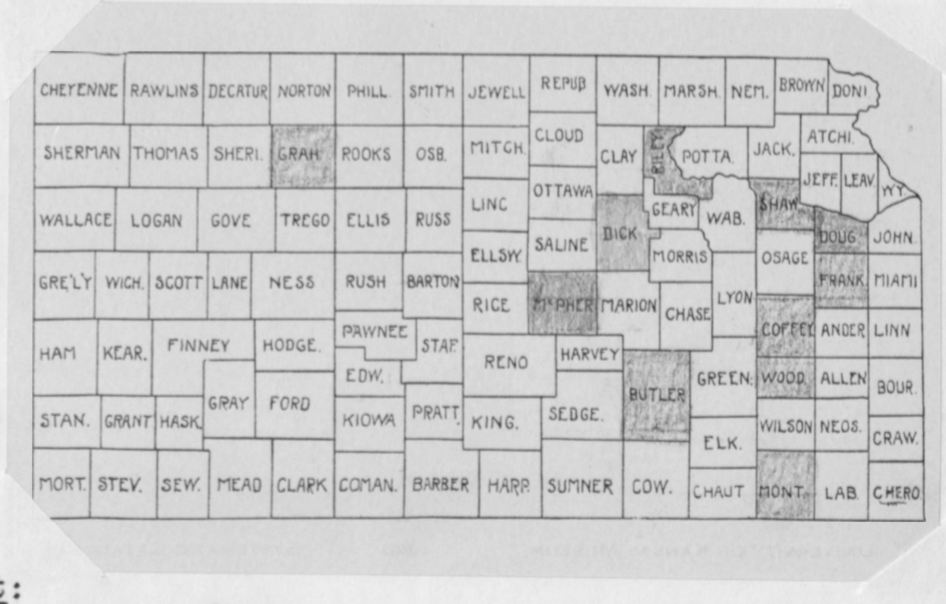
Emys belli, Gray, Cat. Chel. Brit. Museum. 1831, 112, p. 31.

Description:

Alveolar surface of the upper jaw rather narrow,widest behind;the median ridge not prominent.Upper jaw with a notch in front.on each side of which there is a small tooth-like projection.Costal scutes crossed by red or yellow bands.

The prescence of the teeth on each side of the notch in the upper jaw is sufficient grounds for the identification of this species,being found only in this one species of the Kansas fauna.

Range;



Habitat:

Found in nearly all the ponds,sloughs,and slowly running water thruout the state.Most of the hot sunshiny days are spent basking in the sun on logs,drifts,rocks,the banks.They glide very easily into the water at your approach.Are very detrimental to the fish crop as this is the chief item on their bill-of-fare.

CHRYSEMYS ELEGANS(WIED)

SYNONYMY:

Chrysemys elegans(wied) Ditmar's Reptile Book p.40.--O.P. Hay,Batr.and Reptiles of Indiana.17th.ann.Report onthe Geol.and Nat.Resources of Indiana.p.569.

Pseudemys elegans,pr.Max Weid. Trans.Kansas Acad.Sci.vol.1X, p.137.--Bull.Wash.Lab.of Nat'l/Sci.vol.1.no.3.p.100.

Pseudemys elegans,Weid. Trams.Kansas Acad.Sci.vol.V11,p.116. J.Hurter.Herpet of Mo.,1911.p239.

Pseudemys elegans,Cope.1875,1253

Emys cumberlandensis

Trachyemys elegans,Agassiz.1857,4,1,435.

Emys elegans6Weid.1839,63,i,p.213.

Chrysemys scripta,var.elegans:Boulenger;1889,84,78.

Clemmys elegans:

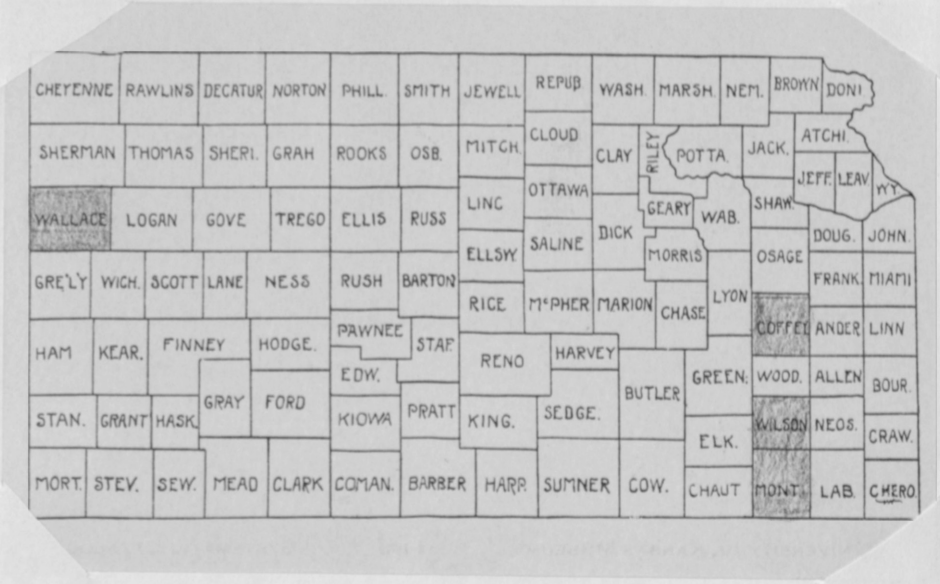
Emys holbrookia:

Trachemys holbrookia:

Description;

Alveolar surface of upper jaw of moderate width;the alveolii not tuberculated,at most slightly denticulated.Upper jaw with median notch,but no lateral teeth,which alone distinguishes it from C.belli.Head of moderate size,shell serrated in the rear;plastral scutes with dark,central blotches,and no dark borders.

Range:



Habitat:

Found in company with C.belli in ponds,sloughs,and other bodies of slowly running or stagnant water.Food consists chiefly of fish,crayfish,frogs and the like,whish it procures by its stealthy approach.

CHRYSEMYS PICTA(HERM.)*

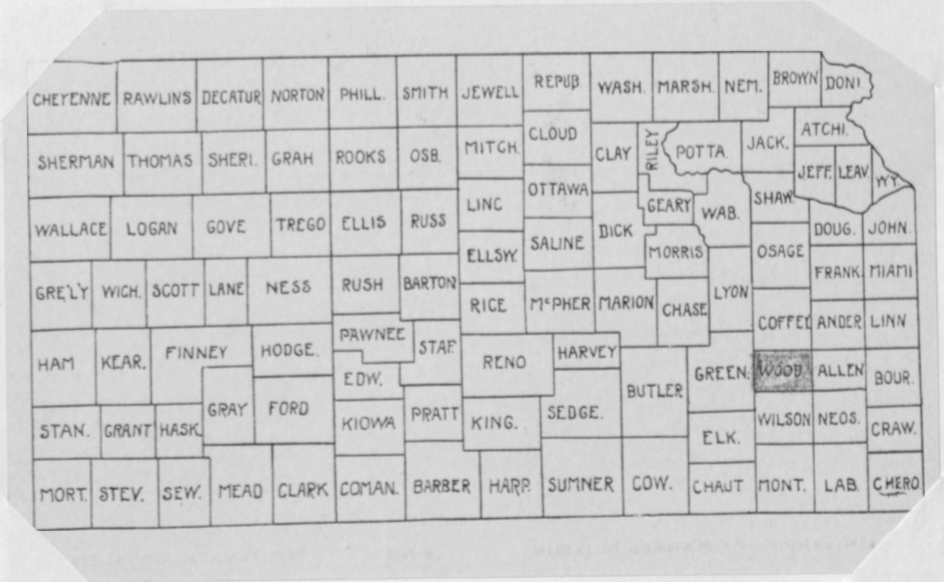
SYNONYMY:

Chrysemys picta,Herm.--Cragin F.W.,Trans.Kansas Acad.Sci.vol.lX, p.137,--Ditmar Reptile Book,p.32,--Cragin F.W. Bull.Wash.Lab.of Nat.Sci.vol.1,no.1,-

Description:

"Carapace flat and perfectly smooth;the borders evenly rounded;plastron wide,no notches.Maximum length about six inches.Carapace darkolive,brown or black,the sheild quite widely margined with greenish yellow.Marginal shields of the carapace,above and below,bordered with crimson,and containing blotches and crescentic markings of that hue. Plastron immaculate yellow;the head black,striped with yellow,while the neck and limbs are striped with a similar red as seen on the marginal shields."Ditmar.

Range:



Habitat:

The habitat here is the same as that given for the two preceding species,C.belli and elegans.

*There are no specimens of this species contained in the Museum collection,but F.W.Cragin,vol.IX of the Trans.Kans.Acad.Sci.,has this to say."It now appears that C.belli,recorded by Agassiz(Cont Nat.Hist.of U.S.)as abundant in Western Missouri,and so quoted in the 'Preliminary Catalogue'under the ~~s~~### name C.picta,was probably the preceding species.But among the specimens from Neosho Falls,Kansas,submitted by Col.Goss,is one of the true C.picta,enabling me to retain the species as an undoubted member of the Kansas fauna."

MALACOCLEMMYS GEOGRAPHICUS,LESEUER.

SYNONYMY:

Malacoclemmys geographicus,Lesaaer. F.W.Cragin,Trans.Kans. Acad.&Si.vol.Vll,1879-80,pll6.--Ditmar's Reptile Book.p.43,

Malacoclemmys geographicaß,Leseuer. J.Hurter,Herpet.of Missouri,1911--O.P.Hay.Batr.And Reptiles Of Indiana,17th Ann.Rept. on the Geol.And Nat.Resources of Indiana.1891.

Testudo geographica,LeSuer.1817,2,86,pl.V.

Emys geographicus,Holbrook. 1842,54,I,99,pl.XlV.

Emys megacephala

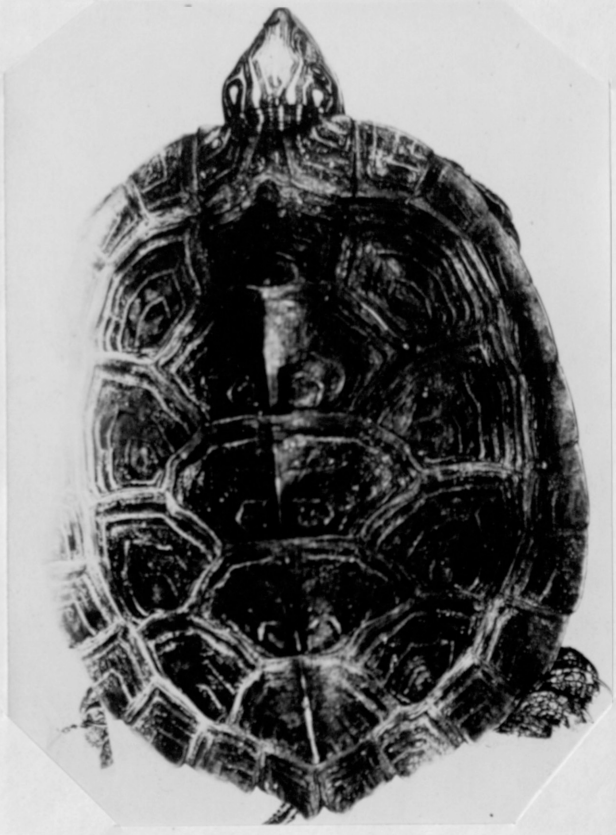
Terrapene geographica

Graptemys geographicaß,Agass.1857,4.i,436.

Clemmys geographica

Malacoclemmys geographica

Emys leseuerii,Gray.1831,112,31.



Description:

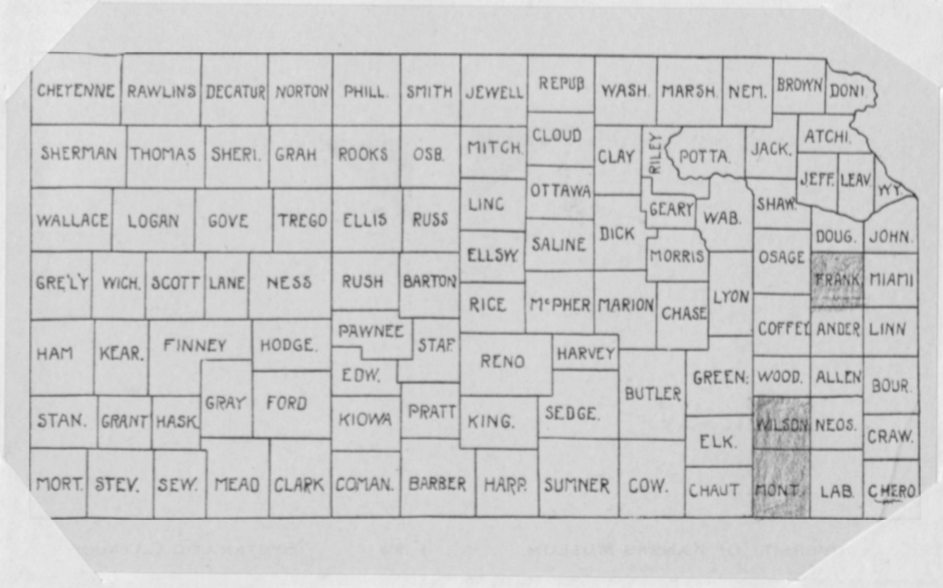
Shell,smoth,and with a dull lustre.Keel moderately developed, not rising in form of tubercles.

Color of carapace,olive,sometimes with black blotches-a net work of fine yellow lines,especially visible on the marginals.

Head proportionately large,and has numerous even and well def ined parallel lines between the eyes.Evidence of five comparat-ively parallel lines between the eyes,the outer two descending onto the eyelid.There is a well defined triangle of lighter colo just posterior to the orbit.

The ante-brachial markings are broken and irregular.

Range:



Habitat:

These specimens are to be found in company with the preceding three species defined-in ponds,sloughs,and other bodies of stag-nant or slowly running water.

Malacoclemmys leseuerii,Gray.

Synonymy:

Malacoclemmys lesuerii,Gray.Cragin F.W. Trans.Kans.Acad.Sci. vol.IX,1883-84,p.137,--Ditmar's Reptile Book.p.44.--True 1875 10,34.--Boulenger,1889,84,91.

Malacoclemmys Le Seuerii,Gray.Cragin,Bull.Wash.Coll.p.101,vol 1.no.3.

Malacoclemmys psuedo-geographicus,Holb. Cragin,Trans.Kans. Acad.Sci.vol.VII,p.116.

Malaclemmys leseuerii,Gray.Huter J.,Herpet.of Missouri,1911.

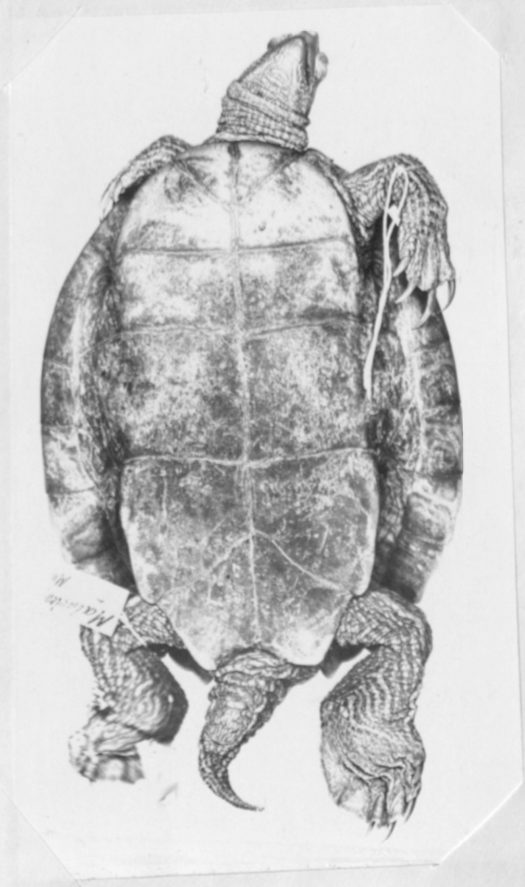
Malacoclemmys psuedo-geographicus,Le Seuerii,

Emys leseuerii

Clemmys psuedo-geographicus

Graptemys leseuerii,Agass.1857,4,436.

Graptemys psuedo-geographicus



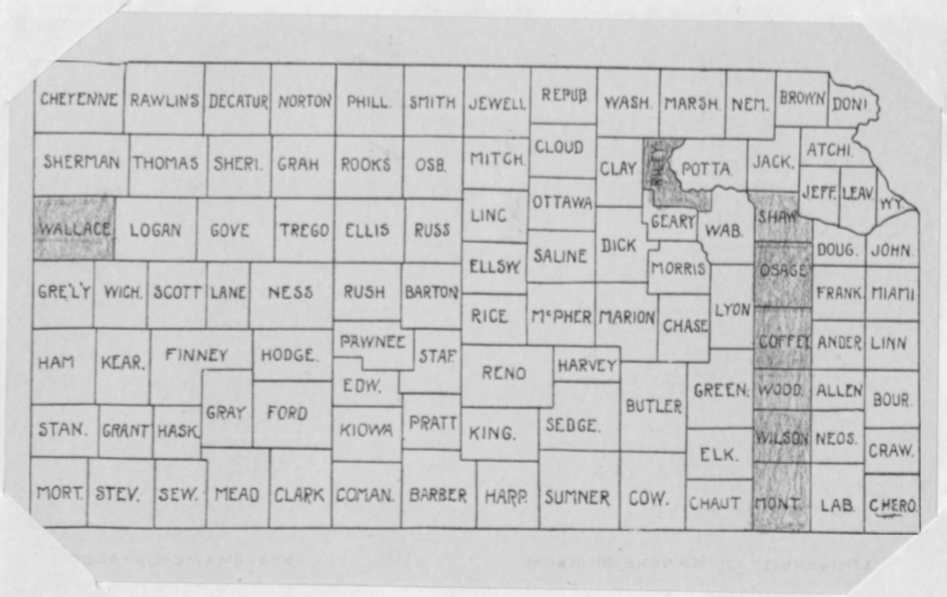
Description:

Keel very distinct,rising in form of tubercles,and thus giving the line of the back a serrated appearance.Ground color much same as that of M.geographicus,being distinguished from same by the prescence of numerous black blotches,most evident and regular at the junction of the marginals.There is no net work of yellow lines present.

The head is comparatively small and has fewer parallel lines. In a well marked specimen examined there is but one line between the orbits.There is a well defined crescent just posterior to the orbits,with thw convex surface toward the eye.The crescent ends posteriorly about half way back on the head.

The ante-brachial markings are very regular and distinct, forming true lines,which extend well onto the toes.

Range:



Habitat:

Same as that given for the Four preceding species.

ORDER-TESTUDINATA

SUB-ORDER-THECOPHORA

FAMILY-KINOSTERNIDAE

Body rather narrow and high-highest behind the middle,beyond which the outline descends rapidly.There are twenty-three marginal plates.Plastron moderately developed,head larg jaws,strong;snout projecting;digits moderately developed and webbed.Five toes on front foot with claws,and four on the hind foot with claws.

GENUS-AROMOCHELYS

Plastron narrow,its hinder lobe not more than one-half as wide as the carapace.Keel usually present.

GENUS-CINOSTERON

Plastron wider,its hinder lobe considerably wider than one-half the carapace.Keel rarely present.

AROMOCHELYS ODORATUS,LATREILLE:

SYNONYMY:

Aromochelys odorata,Latr. J.Hurter,Herpet.of Missouri,1911, 231.--Gray,1855,25,46.

Aromochelys odoratus,Latr. Ditmar's Reptile Book,p.20.

Testudo odorata,Bosc,1803,69.1890.

Testudo pennsylvanica

" glutinata

Emys odorata

Terrapene odorata

" boscii

Cistudo odorata

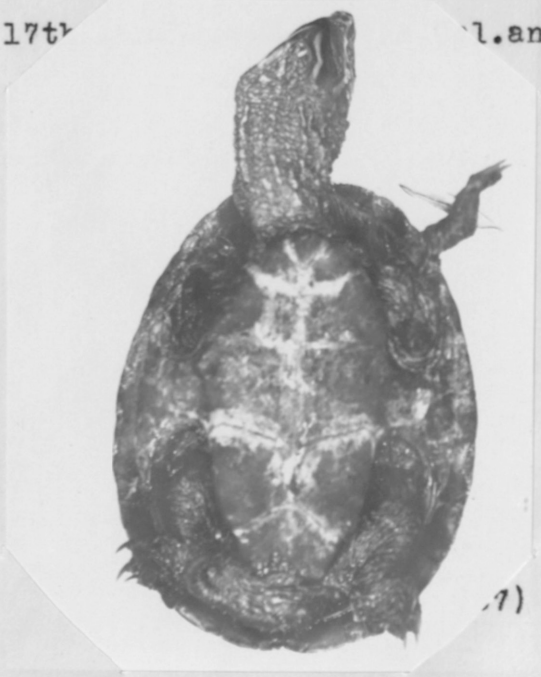
Sternothoerus odoratus,Holbrook,1842,54,i,133.

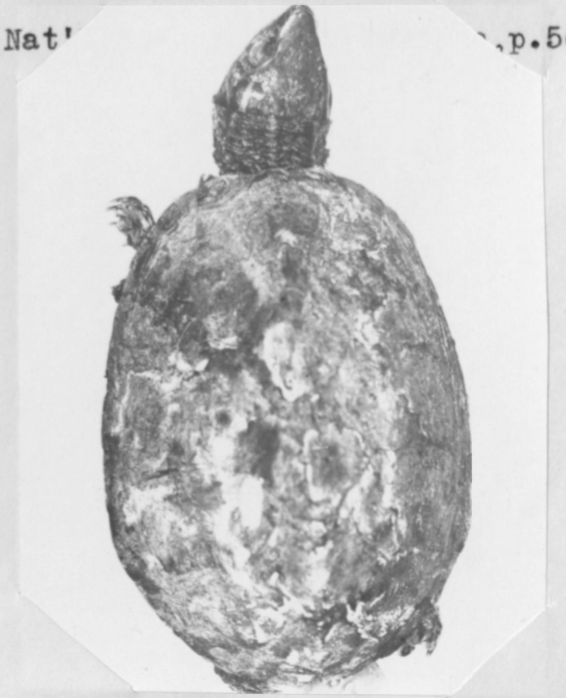
Stanrotypus "

Ozotheca odorata,Agass,1857,p.425.

Cinosternum odoratum,Boul,1889,84,57.

Aromochelys odorata,Bosc.O.P.Hay,Batr.and Reptl.of Indiana 17t[illegible]l.and Nat[illegible],p.561.

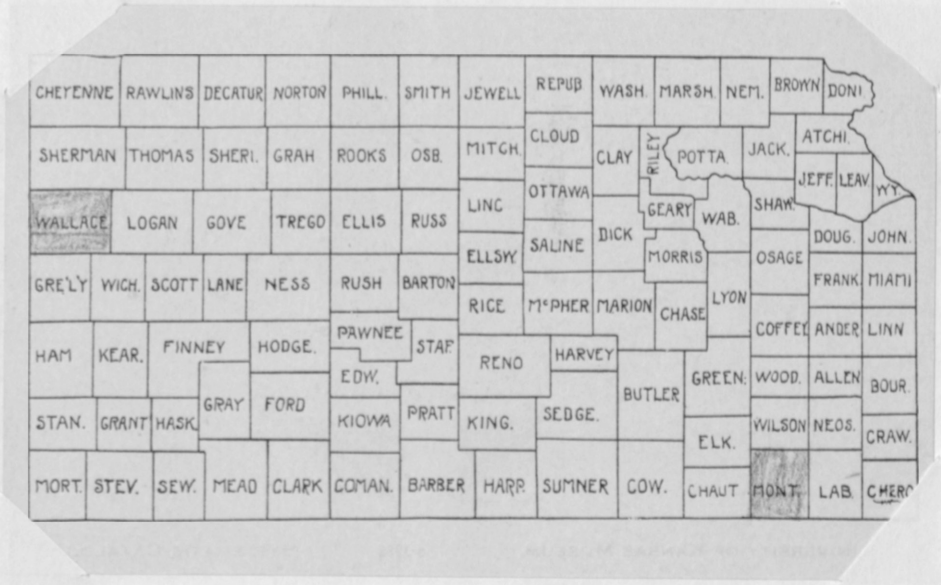




Description:

Carapace narrowly oval and highly arched-keel strongly present in young specimens and usually persistent in adults.Color of carapace dull and usually covered with moss.Plastron dark yellow or brown.The markings of thehead are the distinguishing f features between this and A.tristycha(Agass.).There are two yellow stripes,both extending from tip of snout to the neck,one above and one beneath the eye.The latter is parallel with the line of the jaw,and bends slightly behind the angle of the mouth

Range:



Habitat:

Found about muddy ponds,sloughs,lakes,or any body of slowly running or stagnant water where there is a supply of mud banks or bottom to be worked over,Is rarely seen except when brought to the surface in a seine or on a fishing line.Spend most of the time prowling along the bottom searching for food,which consists chiefly of fish,crawfish,and other forms of moderately deep water inhabitants.

CINOSTERNUM PENNSYLVANICUM, Bosc.

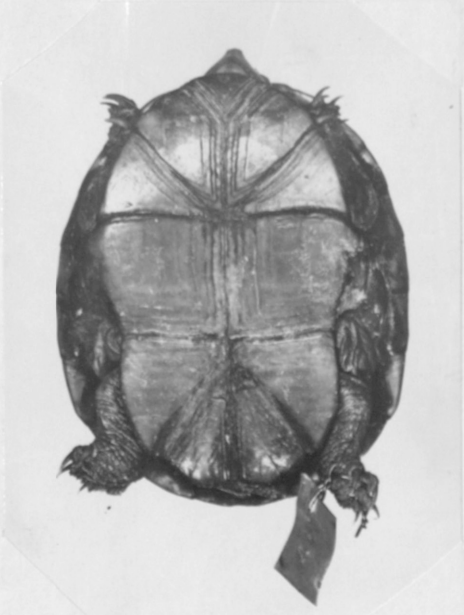
Synonymy:

Cinosternum pennsylvanicum, Bosc. Ditmar Reptile Book, p.23. Boulenger, 1889, 84, 39.--Cragin F.W. Trans.Kans.Acad.Sci.vollX, p.137.--Cragin, F.W.Bull.Wash.Lab.Nat.Sci.vol.1, no.3, p.101.

Kinosternon pennsylvanicum, Gmelin, O.P.Hay.Batr.and Reptiles of Indiana, 17th Ann.Report Geol.and Nat'l.Resources of Indina.p.562.--Holbrook, 1842, 52, 127.

Testudo pennsylvanicum, Gmelin, 1789, 64, 13, 1042.

Thyrosternum pennsylvanicum, Holb.Agass.1857, 4, 428.



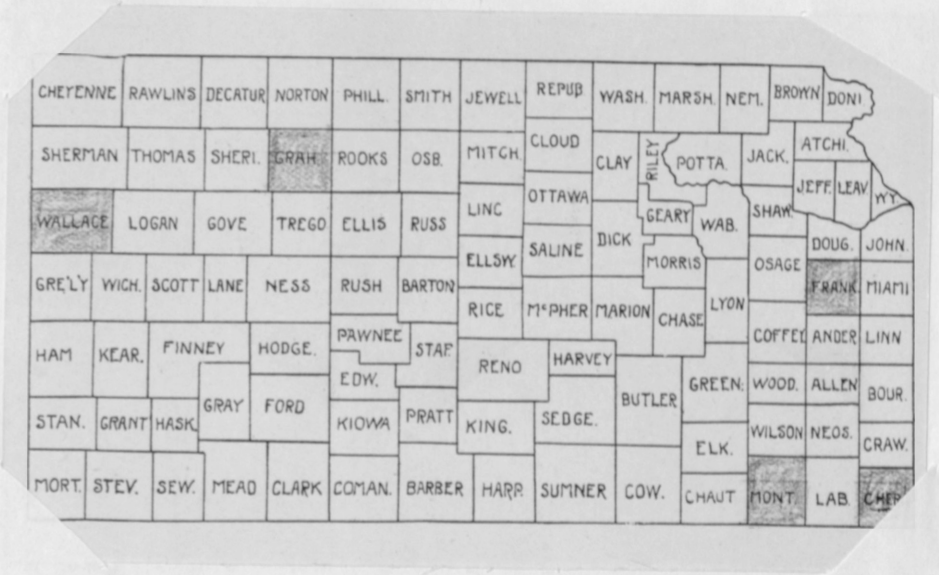
Description:

Carapace more oval than flattened than that of A.odoratus. Plastron nearly filling up the opening, with front and hind lobes loosley hinged and capable of being drawn upwards as a protection.

Color is uniform dark olive above with plastron yellow or brown with lines of growth very distinct. Soft skin above brownish, with spots of yellow, which may be fused into lines.

With the material at hand, I find it very hard to draw a clear distinction between this and C.louisanae, so because of the geographical distribution generally given for C.pennsylvanicam, I hav considered it only as a representative of the Kansas fauna.

Range:



Habitat:

Very similar to that of the musk turtles. They spend long periods, slowly prowling along the bottoms of muddy pools of still water in search of food. It is not at all a rare occuence to catch them on a hook.

SUB-ORDER-THECOPHORA

FAMILY-TRIONYCHIDAE

Body exceedingly broad and depressed;margins of the carapace thin and leathery;oval or circular.There are no epidermic scutes.Snout very much elongated,with nostrils located in the extreme tip.Only the three inner digits are furnished with claws.Head and neck are completely retractile.Plastron very soft.

GENUS-TRIONYX

Plastron little developed behind,leaving the hinder limbs and tail completely exposed;with not more than five callosities.No marginal bones in the carapace.Jaws strong;feet b broad and extensively webbed.

TRIONYX-SPINIFER,Lesson.

SYNONYMY:

Trionyx spinifer,Lesson.Ditmar's Reptile Book.p.77.--Boulenger 1889,84,p.259.

Trionyx spiniferus,LeS.--O/P/Hay. Batr.and Rept.of Indiana 17th ann.Report on the Geol.and Nat'l. Resources of Indiana.p.55 Leseuer,1827.

Amyda spinifera,Leseuer,--Hurter,J. Herpet.of Missouri.

Aspidonectes spinifer,LeSeuer.Cragin,F.W. Trans.Kans.Acad. Sci.volVll,p.116--Agassiz,1857,4,i,p.403.

Trionyx ferox

Gymnopus spiniferus

Trionyx argus

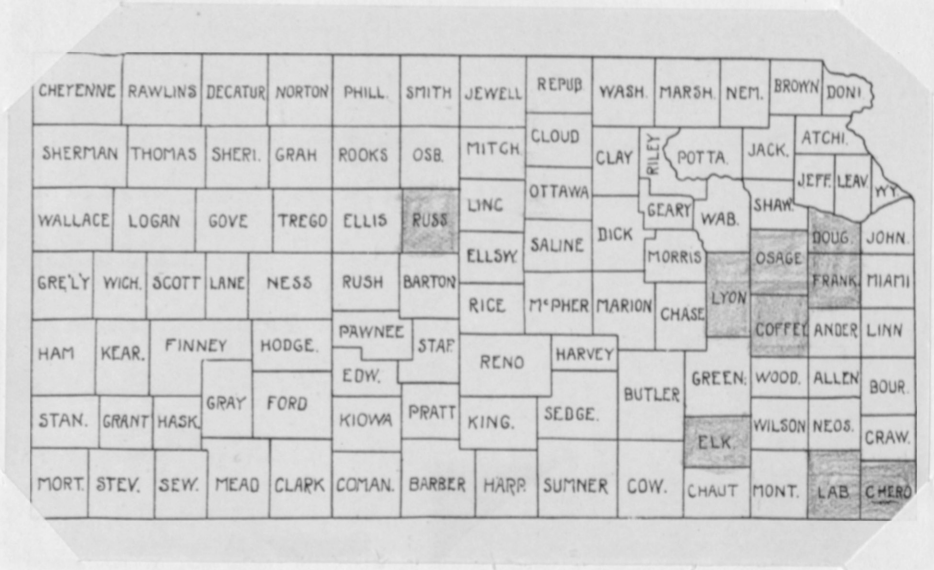
Trionyx spiniferus

Callinia spinifera

Description:

Distinguished from T.mutica by the crescent shaped nostrils, which are situated at the tip of the proboscis and not under it; and by the prescence of papilla extending into the opening from the septum. There is a faint trace of a keel, and may be several black rings, not blotches.

Range:



Habitat:

This turtle, which is the most agile swimmer of the fresh wate Chelonia, inhabits streams and pools (usually streams, both the swift and the sluggish). They often climb out of the water onto some projecting object, which is somewhat smooth and will not injure their soft plastron, or crawl some distance on the smooth sand or mud. They usually leave the water for some distance durin the egg depositing season in search for a suitable spot for a nest. The ♀ after selecting her choice spot, will, by a series of sidewise movements, quickly bury herself, except for the long slender snout which is left protruding in order to procure air.

Hereshe will remain for several days,depositing her eggs,afte which she crawls forth leaving the eggs covered,and the young when hatched to care for themselves.The eggs are nearly spherisal in shape,thus resembling those of Chelydra serpentina.

I have observed this turtle,upon seeing its escape impossible,quickly bury itself in the soft sand,and upon being dug up would lie perfectly motionless for a short period,whem it would suddenly make a hasty scramble in a further attempt to make good its get-a-way.

TRIONYX-MUTICUS,LESEUER*

Synonymy:

Trionyx muticus,Lesueur,Ditmar's Reptile Book,p.78.--Leseur, 1827,86,263.--Holbrook,1842,54,19.--Gray, 1855,25,69.--Boulenger 1882,84,p.260.--O.P.Hay,Batr.and Rep.Indiana.17th Ann.Rep.of the Geol.and Nat'l.Resources of the State.

Amyda mutica,Lesueur,Craginf.W.Trans.Kans.Acad.Sci.vol.Vll, p.116,--Hurter,J. Herpet.of Missouri.1911,p.249.

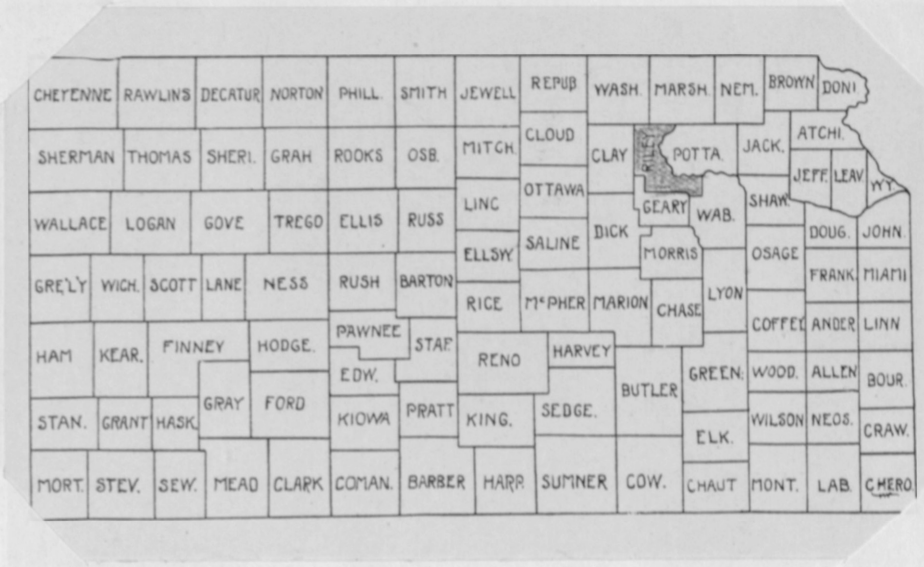
Gymnopus muticus

Callinia microcephala

Description:

Nostrils round and situated under the point of the probos-cis,and containing no papilla .These three characteristics are certain distinguishing features that enables one to decide be-tween this species and T.spinifer.The markings of the carapace are very faint as in the adult specimens.

Range:



Habitat:

The habitat of muticus is the same as that of spinifer, both species being found in, the same waters.

*Note.

I. found none of this species in the Musem collection, but F.W. Cragin, vol. 1X, Trans. Kans. Acad. Sci. p. 116 says, "This species is not uncommon at Manhattan where Prof. Popenoe has observed it intthe Kansas and Blue Rivers."

SUB-ORDER-THECOPHORA

FAMILY-CHELYDRIDAE

Largest of the fresh water Chelonians.Carapace dull,rough,heavily keeled,there being three distinct keels, and deeply serrated along the posterior margin.The plastron is very poorly developed and affords no protection.

The head is very large and is supplied with very powerful jaw The tail is also very large and resembles the tail of the alligator with its crest of plates.

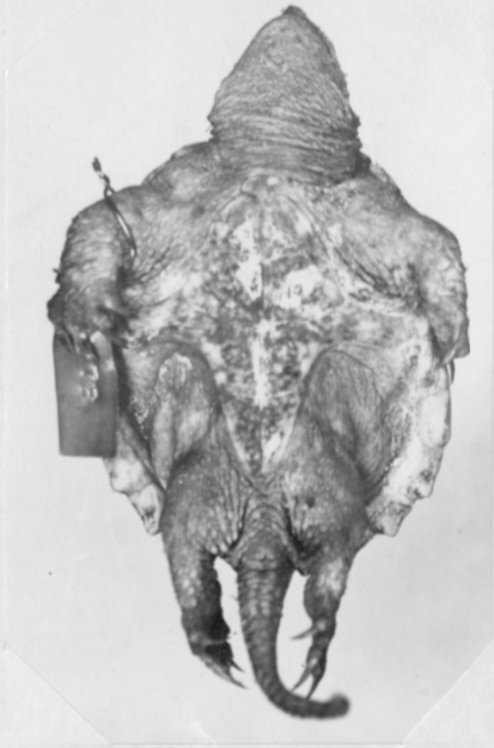
CHELYDRA SERPENTINA-LINN.

SYNONYMY:

Chelydra serpentina,Linn.Ditmar's Reptile Book,p.12--Cragin F.W. Trans.Kans.Acad.Sci.vol.Vll,p.117.--O.P.Hay,Batr.and Rept. of Indiana,17th Ann.Rept.of the Geol.and Nat'l.Resources of Indiana.p.557.--Schweigger,1814.88,24- Agassiz,1857,41i,p.417. Boulenger,1889,84,20.

Testudo serpentina,Linn.1758,64.

Chelonura serpentina,Holb.1842,54,p.139.



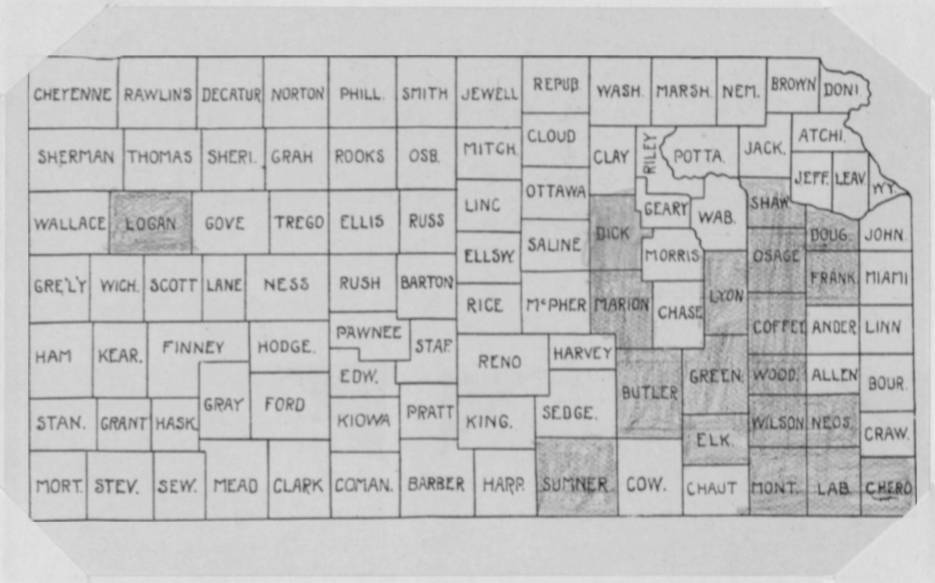
Descr.

Carapace broad and very rough.There are three tuberculated keels,one median and two lateral.There are twenty three marginals exclusive of nuchal.

Head large and flattened above;eyes small and well forward directed upward and outward.Five fingers and five toes,all equipped with a claw except the outer one of the hind foot.

Color of carapace chestnut brown,and black;plastron and soft skin,yellow to white.

Range:



Habitat:

Found in slowly running water,where an ample supply of mud is present,and in pools of still and stagnant water under the same conditions.They rarely come out of the water,instead they spend most of their time crawling along the bottom feeding on fish crayfish,and the like.Water fowls also constitute a goodly portion of their food.They will very quietly approach the bird as i swims on the surface,and then with a sudden lurch of the head it will secure a firm hold,and sink to,the bottom,where the fow is held until drowned.They also secure part of their food by burying themselves in the mud along the bank and catching the unlucky fowl,or bird that happens to near its powerful jaws.

The female usually deposites its eggs some little distance from the water.After the suitable spot has been selected,she will bury herself,where she will remain for from two to five days,depositing her eggs.She will then come forth in

such a manner that the dirt which covered her will fall onto the eggs and serve as a cover for them. The eggs are then left to their own lot, and when the young come forth, they must shift for themselves

MACROCHELYS, LACERTINA, Schw.

Synonymy: (taken from Hurter)

Chelonura temminckii

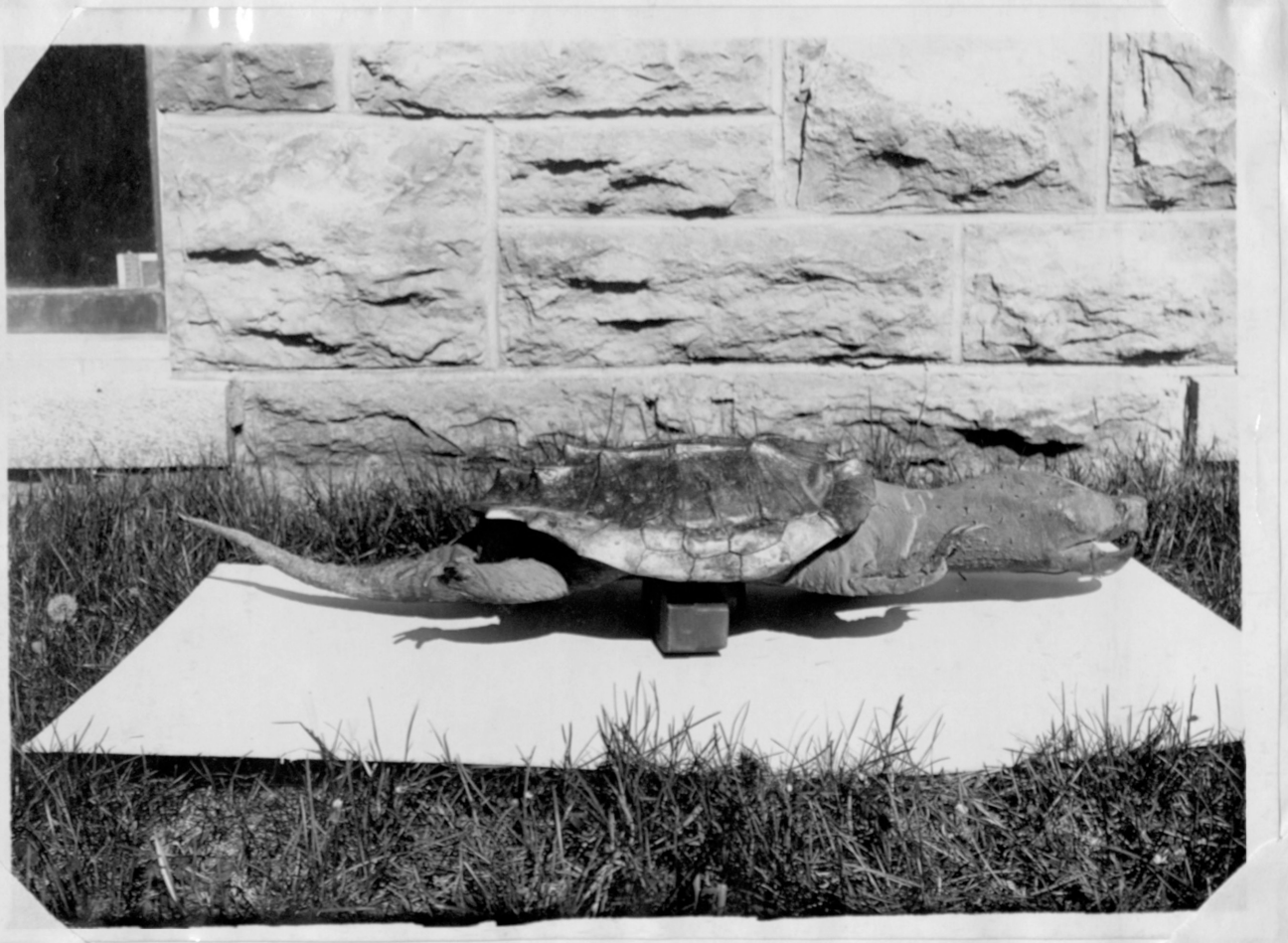
Emysaurus "

Gypochelys lacertina

Macroclemmys temminckii

Macroclemys "

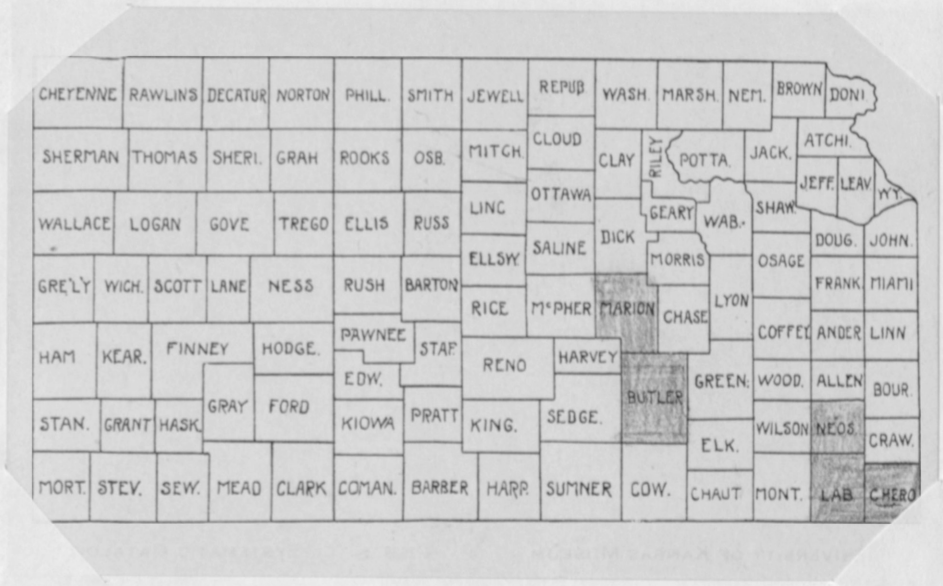
Macroclemys lacertina



Description:

Distinguished fron C.serpentina by the prescence of three infra-marginal plates just above the bridge(junction of the carapace and the plastron);by the rapidly descending snout of the exceedingly large head;by the general yellowish color,and by the abscence of large shields under the tail.

Range:



Habitat:

Same as that given for C.serpentina.

Note:There is one specimen in the Museum collection,but there is no data accompaning same so I have sought elsewhere for evidence to substantiate the occurence of this turtle in the Kansas fauna.

Mr D.M.Bliss of Columbus has in his posession two shells of this turtle which he very kindly furnished me for examination. The larger specimen measures(carapace) 22 in.inlength by 21 in. in width,and weighed 105 lbs when caught;the other specimen

measures 16 by 16 andweighed 65 lbs.when captured.

The larger specimen was captured by Andrew Jarrett at Rocky Ford on the Neosho River in 1897,and the smaller one by Capt. Price at Baxter Springs on Spring River in 1895. F.W.Cragin Bull.Wash.Coll. vol.1,no.7,p.212,says--"A specimen of this turtle was captured in May 1885 by Wm.Butler,two miles above Erie on the Neosho River.Weight,59 lbs.,length(entire) 27 in., length of carapace 20 in.,breadth ,16 in.,circumference of head 18 in.,of base of neck,17 in.,of narrowast part of neck,15 in." He also lists another specimen as taken by Dr.Newlon at Oswego on the same river which weighed 34 lbs.

I have personally taken this ##### turtle at three different localities in the state;one was taken in the Neosho River in the summer of 1911 just below Neosho Park(Parsons);a second was taken in the Walnut River at Augusta in 1912;and a third in the Cottonwood River at Florence during the same summer

Ditmar in his Reptile Book says--"Rivers emptying into the Gulf of Mexico-Florida to Texas;northward to Missouri."

I N D E X

I N D E X (cont.)

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Annals and Magazine of Natural History,London,

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Bull.U.S.Nat'l.Museum,1882,No.24.

LIST OF SPECIES DEALT WITH IH THE PAPER

Lacertilia

Cnemidophorus sexlineatus

Cnemidophorus tesselatus

Crotaphytus collaris

Crotaphytus collaris baileyi

Eumeces epipleurotis

Eumeces guttulatus

Eumeces leptogrammus

Eumeces multivirgatus

Eumeces obsoletus

Eumeces pluvialis

Eumeces quinquelineatus

Eumeces septentrionalis

Holbrookia maculata lacerata

Holbrookia maculata maculata

Liolepisma laterale

Ophisaurus ventralis ventralis

Phyrnosoma cornutum

Phyrnosoma cornutum----?---- -

Phyrnosoma douglassi hernandessi.

Sceloporus undulatus consobrinus

Sceloporus undulatus undulatus

Total ---------21

List of specimens described, continued.

Chelonia

Aromochelys odorata

Chelydra serpentina

Chrysemys belli

Chrysemys elegans

Chrysemys picta

Cinosternum pennsylvanicum

Cistudo ornata

Cistudo triunguis

Macrochelys lacertina

Malacoclemmys geographicus

Malacoclemmys lesueurii

Trionyx muticus

Trionyx spinifer